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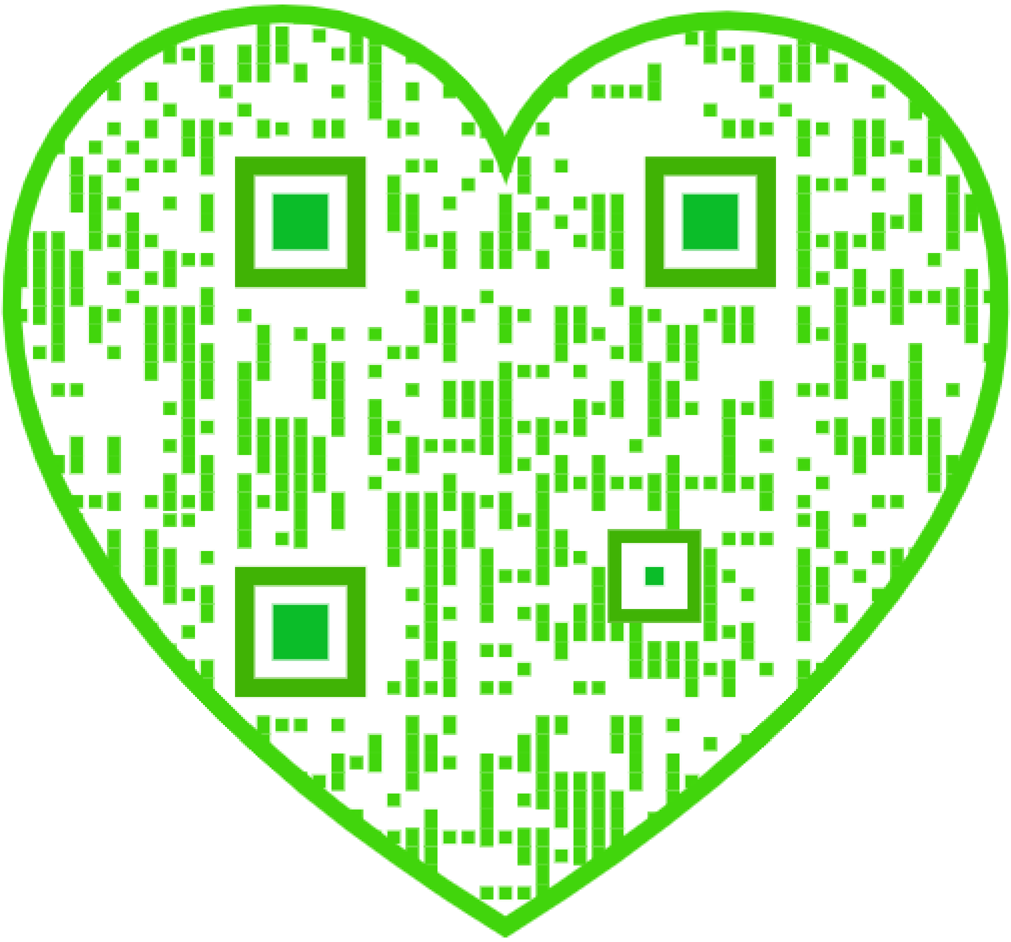

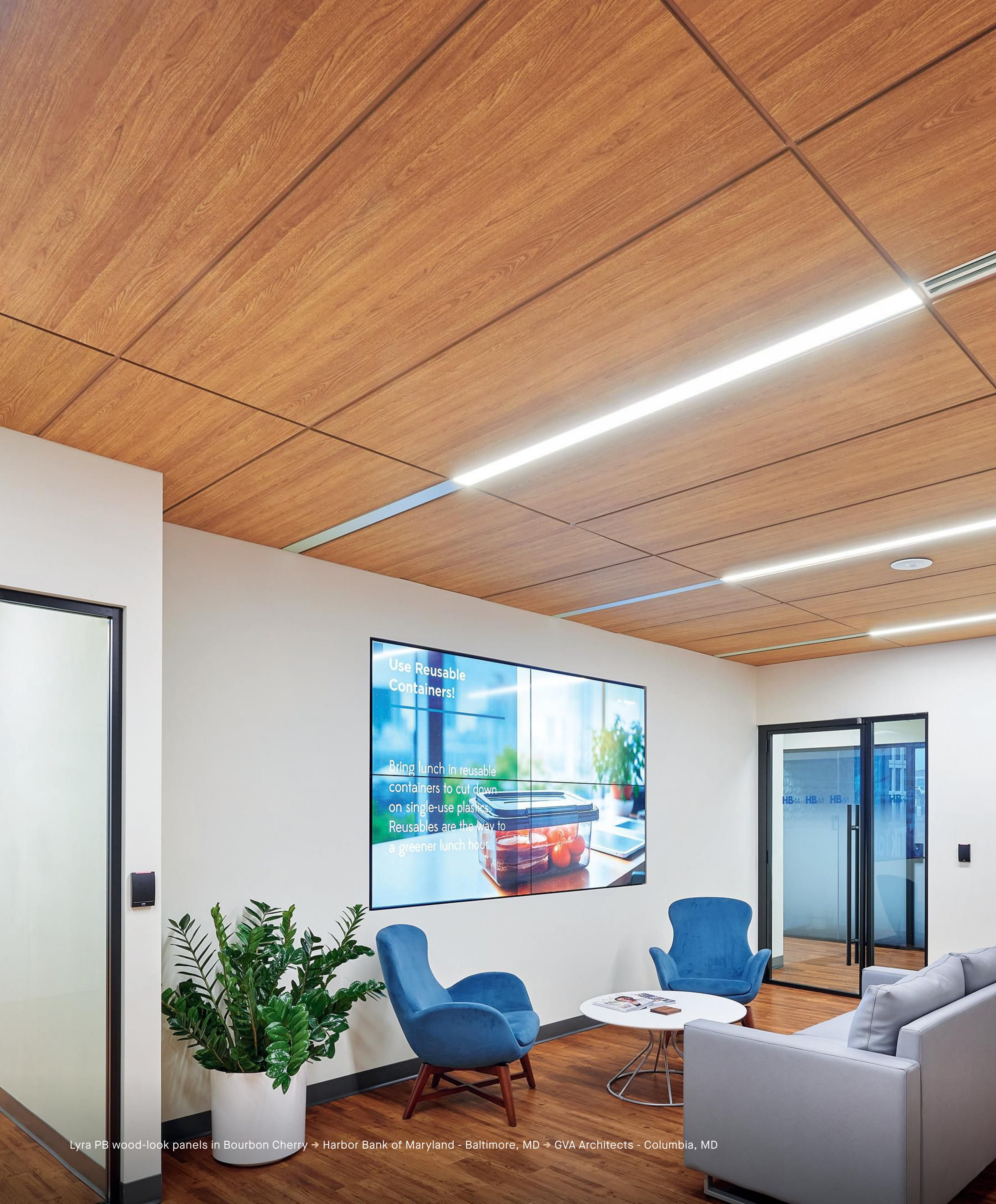

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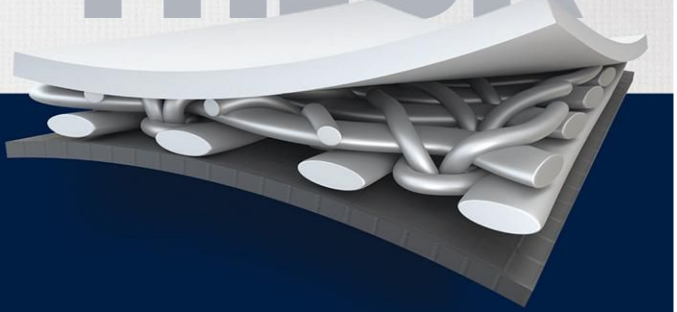

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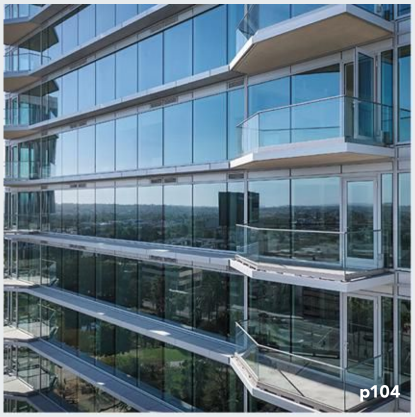

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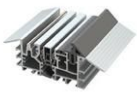

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Twisting in the Wind

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IN LATE January, while on a short trip to Washington, D.C., I had the opportunity to tour inside the Smithsonian Castle, now closed for a major renovation expected to last several years. Completed in 1855 in a combination of late Romanesque and early Gothic revival styles, it is the signature building of the institution, unique for being established by Congress but not an agency of the government. With its many towers rendered in red sandstone, the Castle was intentionally designed by James Renwick Jr. to stand apart from the Neoclassical federal buildings around it—a detail that held more meaning given the timing of my visit, just days after the newly inaugurated president issued an executive order titled *Promoting Beautiful Federal Civic Architecture*. “Federal public buildings should be visually identifiable as civic buildings and respect regional, traditional, and classical architectural heritage in order to uplift and beautify public spaces and ennoble the United States and our system of self-government,” it reads.

That same week, Boston City Hall was designated a historic landmark. While not a federal building, the famously controversial civic centerpiece designed by Kallmann McKinnell & Knowles (1968) in the Brutalist style represents exactly the kind of building that presumably wouldn’t pass muster now. Also in January, the city of Dallas began the process of landmarking its I.M. Pei–designed city hall (1978), a bold inverted pyramid that similarly might get scrapped if under review today.

The blitzkrieg of executive orders, federal employee buyout offers, and tariffs (particularly on steel) during the first few weeks of the new administration has left many of us wondering about the future of countless government departments and programs, and more specifically for the profession, what impact all of it will have on architecture.

There are also implications for the allied arts—to which architecture is inextricably linked. Take for example, the Smithsonian. While Renwick wanted to assert the independence of that budding organization—now the world’s largest museum, education, and research complex—it’s not entirely without government oversight. Nor are any museums that receive federal grants. While it may not be as easy to shelve plans for a building that is breaking ground, or that has been years in design and review, how might the subject matter of the exhibitions these museums mount—focusing on climate change, for instance—be altered? It may be optimistic, but in this unnerving period of more questions than answers, it is helpful to remember that the arts endure, despite the tastes and agenda of a single entity.

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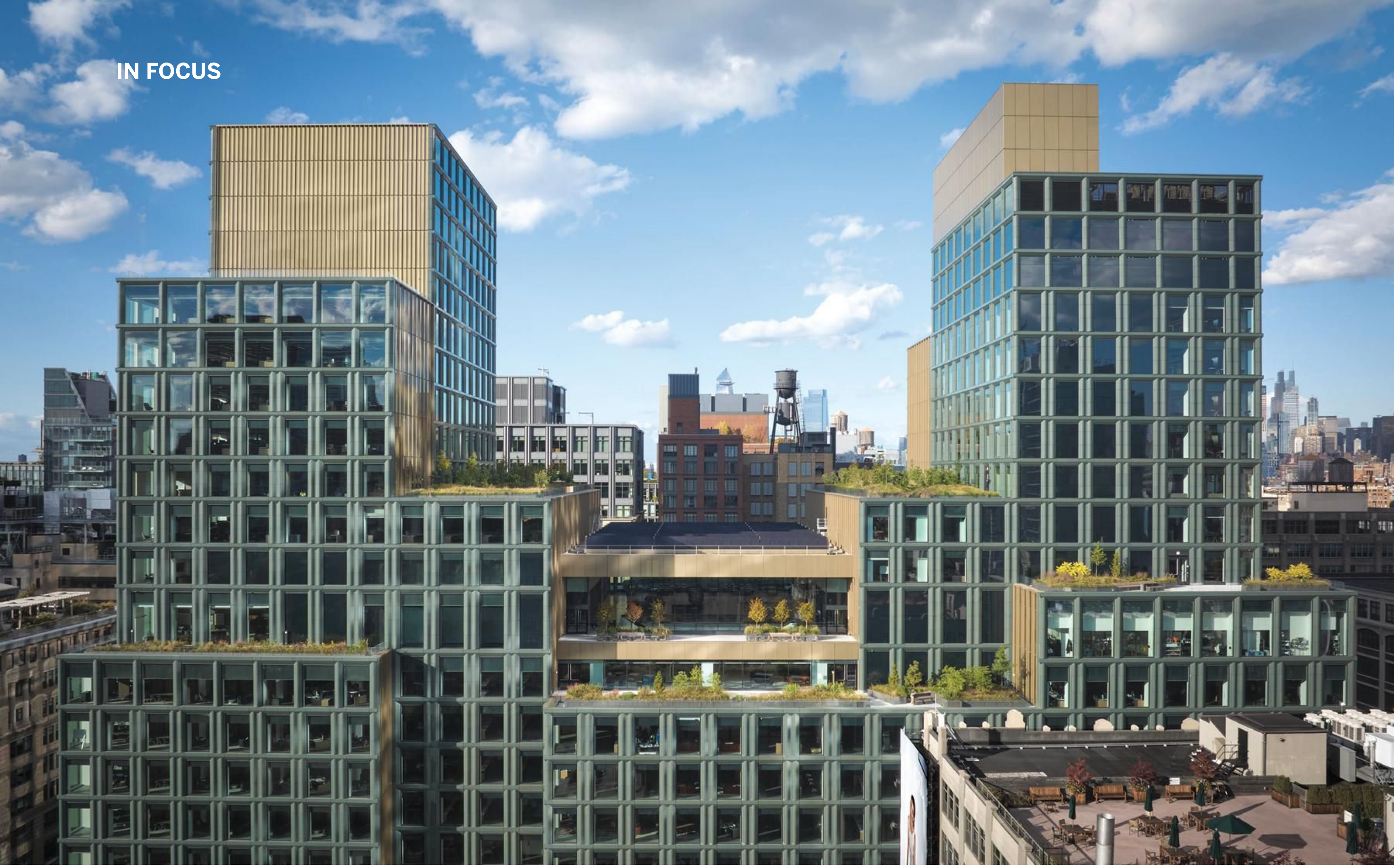

Manhattan Magic

Disney's new downtown headquarters takes cues from the loft buildings that surround it.

BY JAMES S. RUSSELL, FAIA EMERITUS

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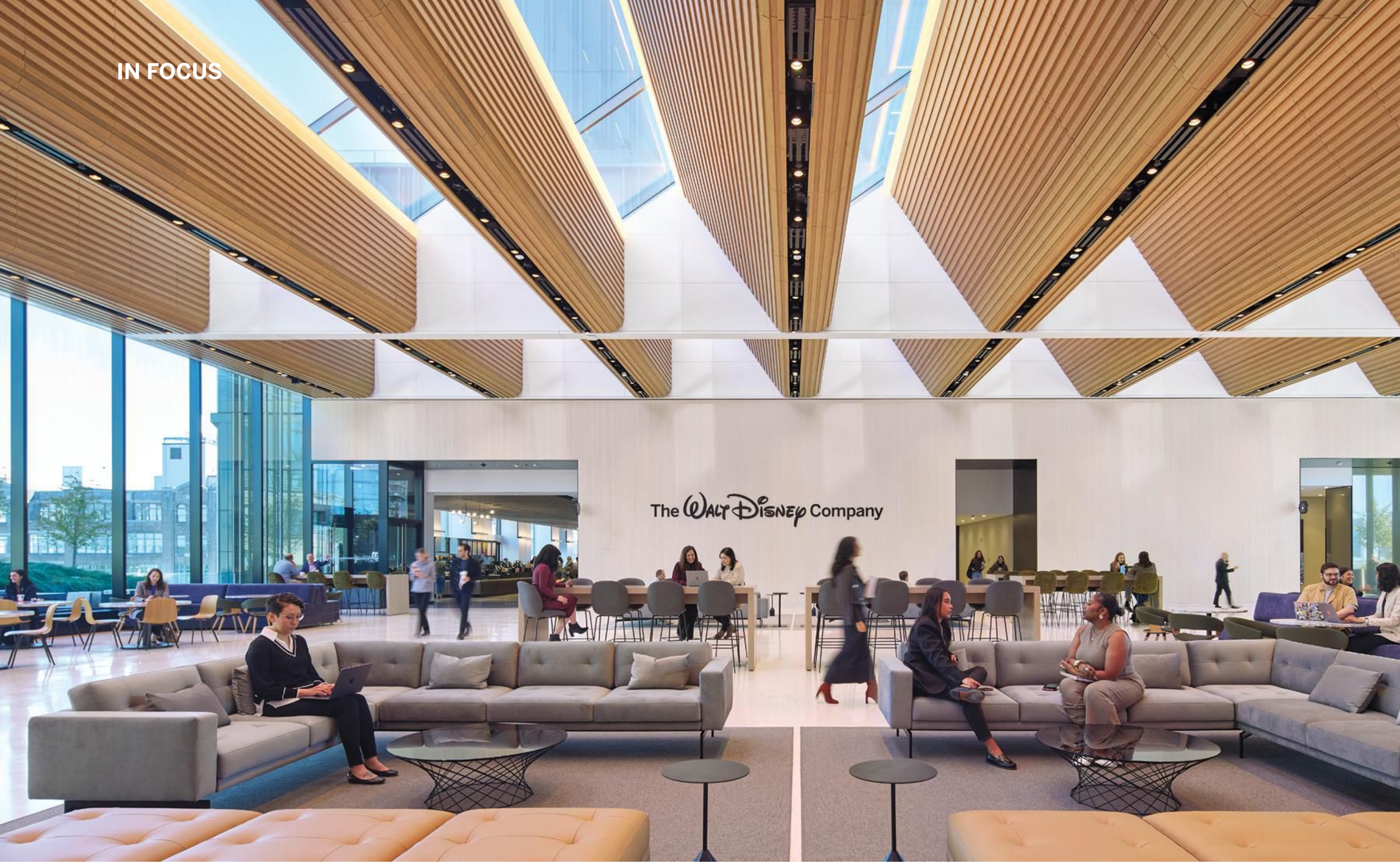
ON A FULL-BLOCK site, a rarity in high-density Manhattan, an enormous new corporate headquarters has risen. For its bulk, it is almost obsessively unshowy, though its oversize windows, framed in rounded extrusions of iridescent terra-cotta, reward notice along the street. Identified only as 7 Hudson Square, the 19-story Robert A. Iger Building gathers the disparate New York production and corporate operations of The Walt Disney Company into a single hub. Though there is an entrance for studio audiences and tours, as well as two other access points for staff and guests, the quiet sobriety of SOM's exterior does not include logos or Mickey Mouse statues waving at passersby.

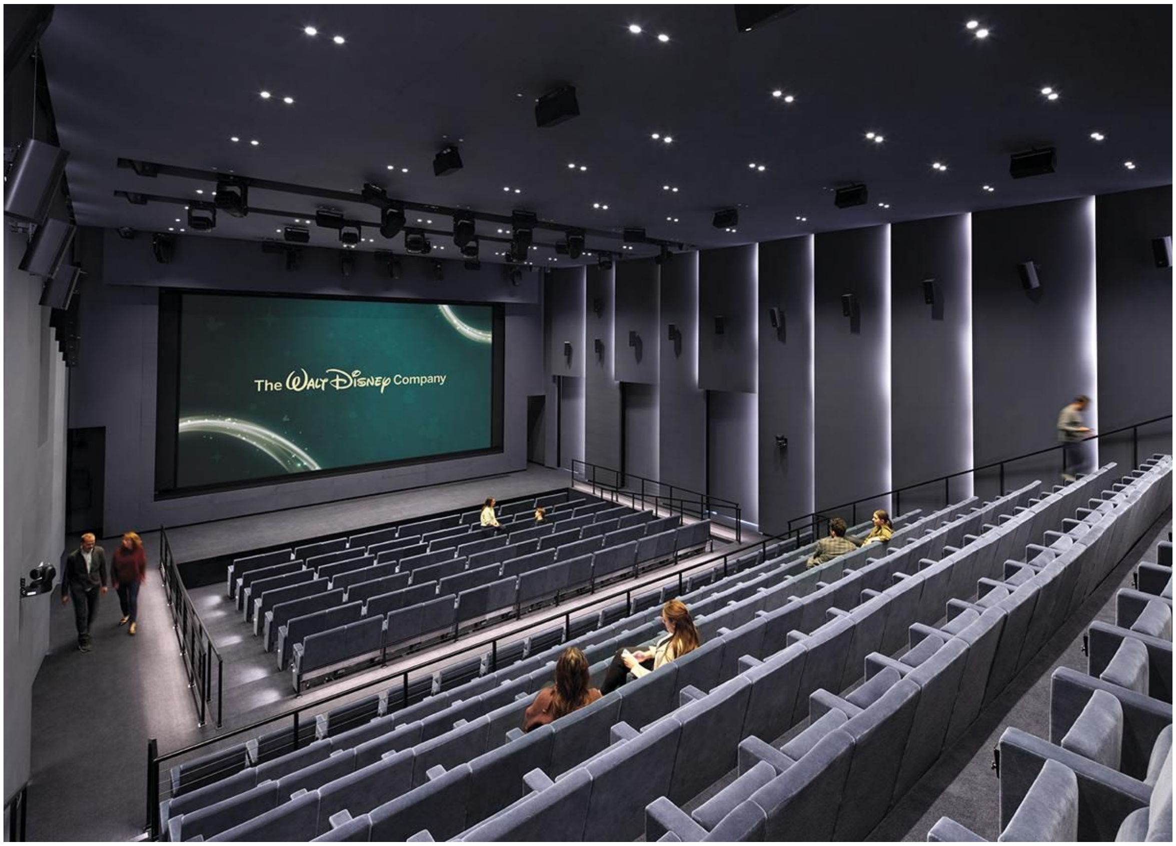
It is the opposite of the self-conscious "entertainment architecture" commissioned by Michael Eisner, the CEO who became an architecture aficionado in the 1990s, hiring Michael Graves for over-the-top PoMo extravaganzas including the Burbank Team Disney headquarters, which has the Seven Dwarfs holding up a classical pediment. Other name-brand architects of the era devised brightly colored confections, including Robert A.M. Stern and Arata Isozaki.

Cartoon imagery can't capture the breadth of the media and entertainment conglomerate Disney is now. Seven Hudson Square has little in common with the theme parks, animation studios, and other entertainment operations that are run out of the Burbank, California, headquarters. The new building unites tech-intensive news, editorial, streaming, and live productions with a variety of corporate office functions. These include well-known brands such as ABC and ESPN.

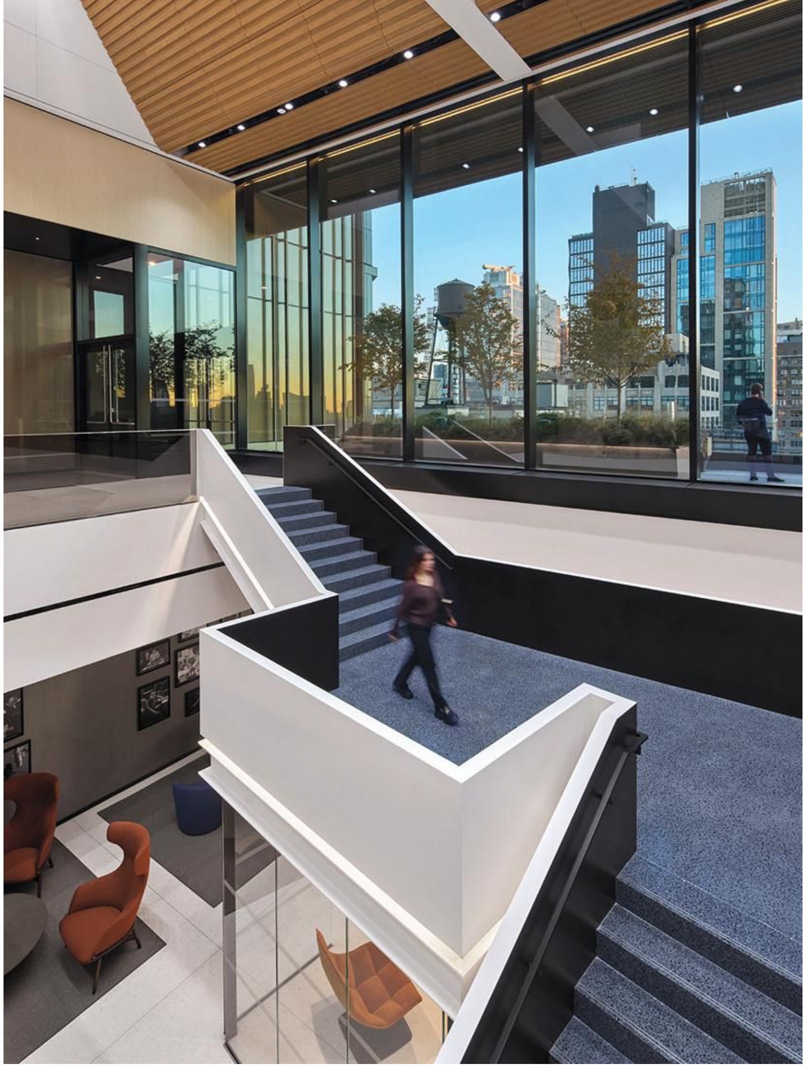
Finding the right site was no easy feat when considering a 1.2 million-square-foot structure in Manhattan. Disney obtained a full block in the Lower Manhattan Hudson Square district from Trinity Church Wall Street. The new headquarters aids the company's quest to hire and retain top talent, and keep them together, explained Andrew Arel, vice president, Corporate Real Estate Design and Delivery, adding, "We wanted to be downtown, in a neighborhood, part of a community."

What had been a thriving printing district of brawny loft buildings now hosts media and tech startups. Tech is increasingly infused in Disney's businesses, and the profile of the neighborhood (Google's New York headquarters is close by) aids recruitment.


The Walt Disney Company


The Walt Disney Company

A ninth-floor conference center connects to the 10th-floor Great Room (above) via a pair of sculptural stairs that rise through a double-height opening (opposite). Advance screenings are shown in the theater (left).



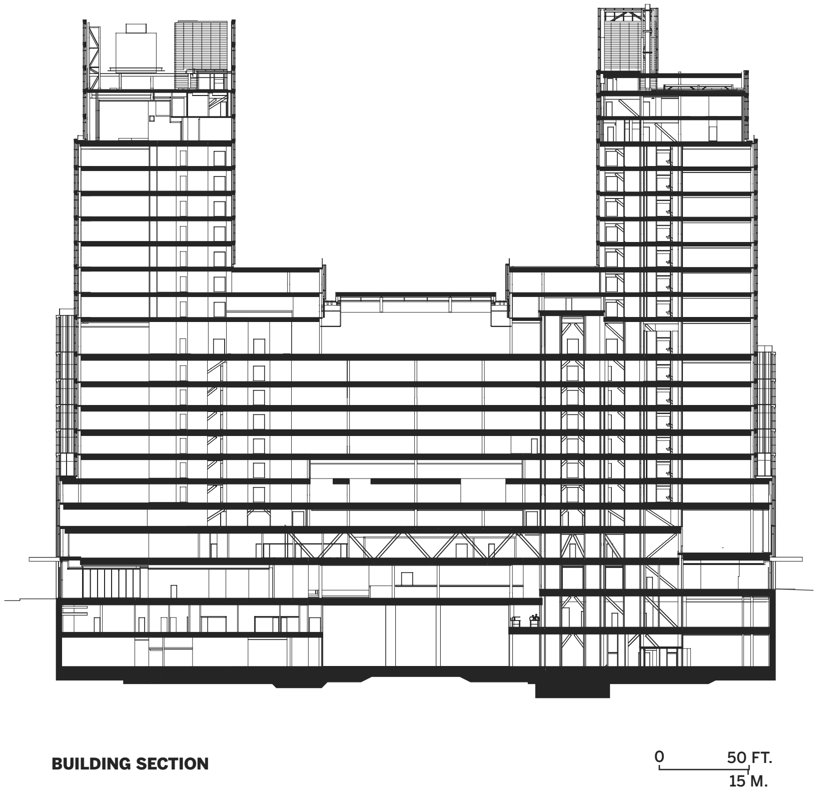
The zoning was congenial to the very large floor plates the company sought. It allowed filling almost the entire site with a 100-foot-high base before requiring wedding cake–style setbacks that SOM massaged into "nested volumes," as partner Colin Koop put it. They reconcile Disney's program with emulation of the predominant loft-building scale.

The architectural strategy also responded to Disney CEO Robert A. Iger's stated desire to "stand out while fitting in." Aside from taming the building's great bulk, SOM navigated this contradiction through its curtain wall design. Rather than default to acres of characterless glass, oversize windows are inset 30 inches and wrapped by tubular pilasters and spandrels made of green terra-cotta, a nod to the punched-masonry facades typical of the neighborhood. From a distance, the softly iridescent ceramic sheen enlivens the formidable street walls. Expanses of champagne-tinted aluminum panels faced with vertical rods accent setbacks and building insets, as if the window wall had been sliced away.

The first eight stories of the steel-framed building, most around 84,000 square feet each, almost fill the site. Two circulation and services cores are offset to the east and west, to free up much of the central floor plate for vast media production areas and double-height broadcast studios designed by Gensler.

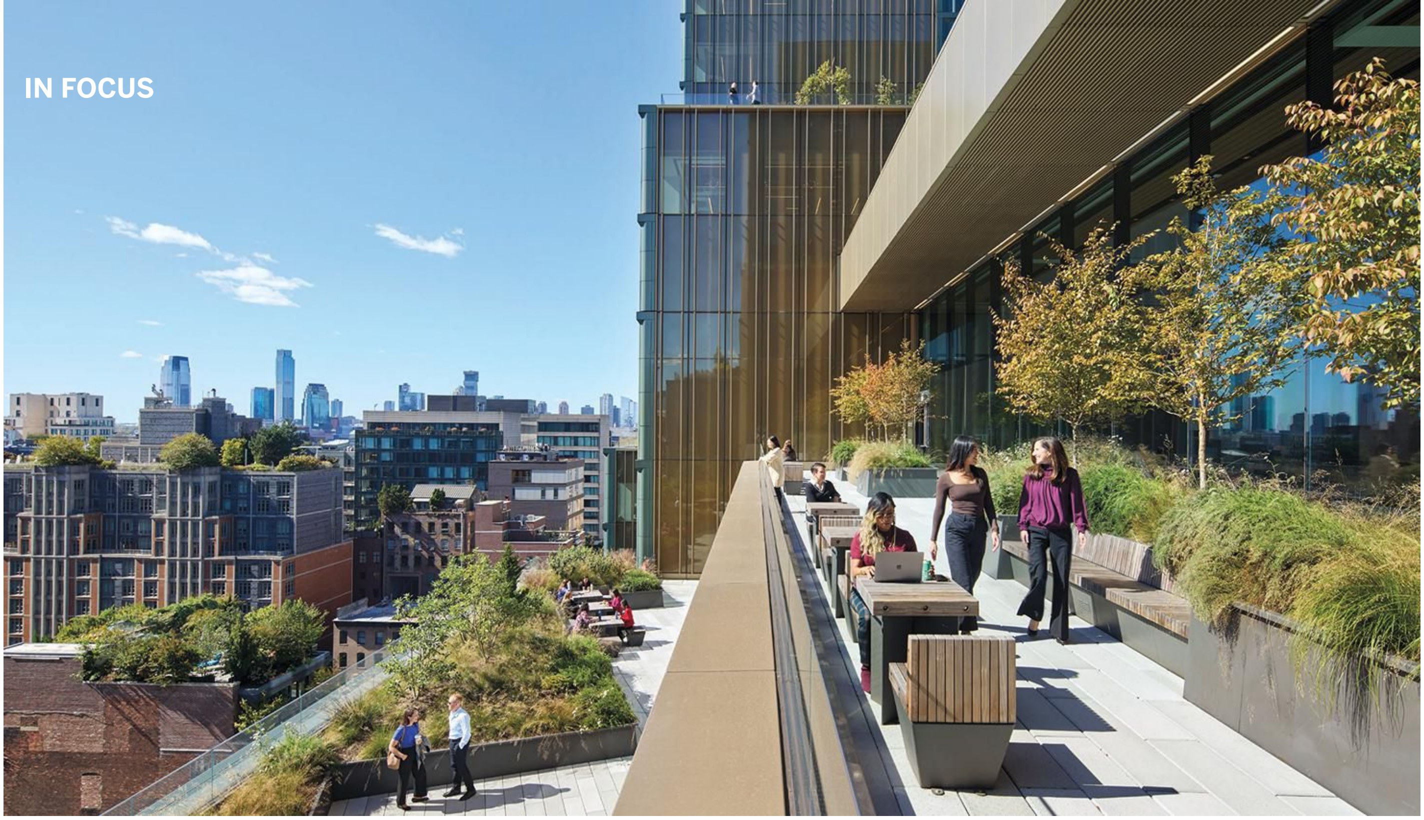
To break down silos, one vast floor hosts workstations that bring together the news operations of ABC, WABC (the local affiliate), and ESPN, with broadcast in the same location as radio, web, and streaming production. Gensler channels the architectural restraint in the interior finish palette: exposed ceilings, oatmeal carpet, and gray metal and oak accents. "We did not want the aesthetics to overpower this platform for creativity," explained Johnathan Sandler, Gensler's workplace-strategy director. The inspiration was the sleek industrial-garage look of Pixar's Emeryville, California, headquarters, designed by Bohlin Cywinski Jackson with Steve Jobs before Disney acquired the company. "The palette was intended to feel effortlessly stylish and confident," Sandler added. "Sprezzatura is the Italian term, and Disney liked that."

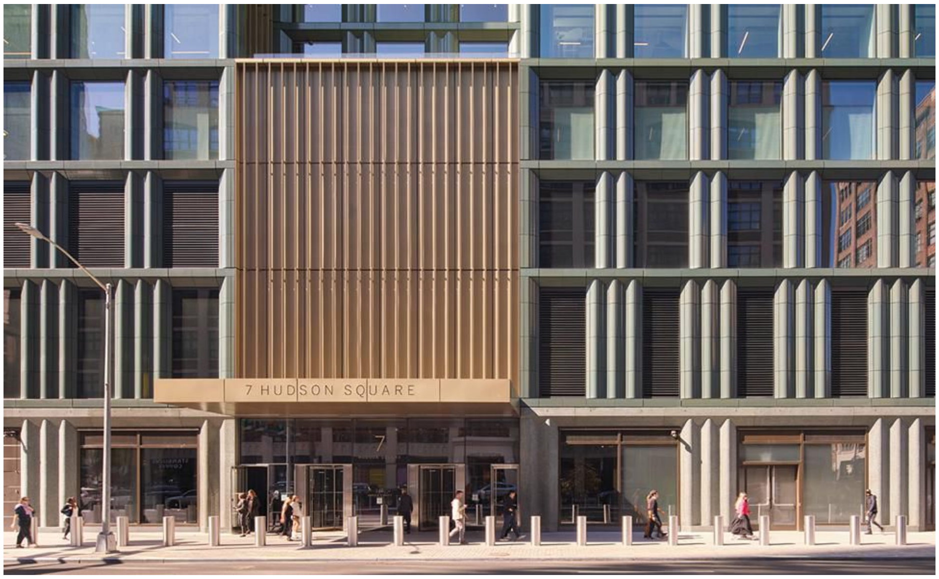
The bustling floors, with densely packed workstations, open long vistas, so that editors can quickly coordinate breaking-news tasks across broadcast, web, and streaming. The vastness of the floors causes ceiling heights (constrained by the zoning envelope) to seem low, but daylight penetrates deep within the building. With mobile phones, laptops, and tech infrastructure common to all, staff can



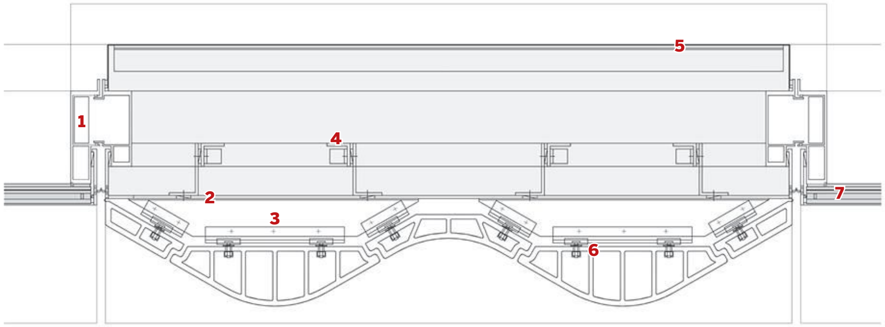
BUILDING SECTION

PHOTOGRAPHY: © DAVE BURK (OPPOSITE, TOP); GARRETT ROWLAND (OPPOSITE, BOTTOM AND TOP RIGHT)





The building steps back in lushly planted terraces (above). Rounded extrusions of iridescent terra-cotta reward notice along the street (left).



FACADE DETAIL

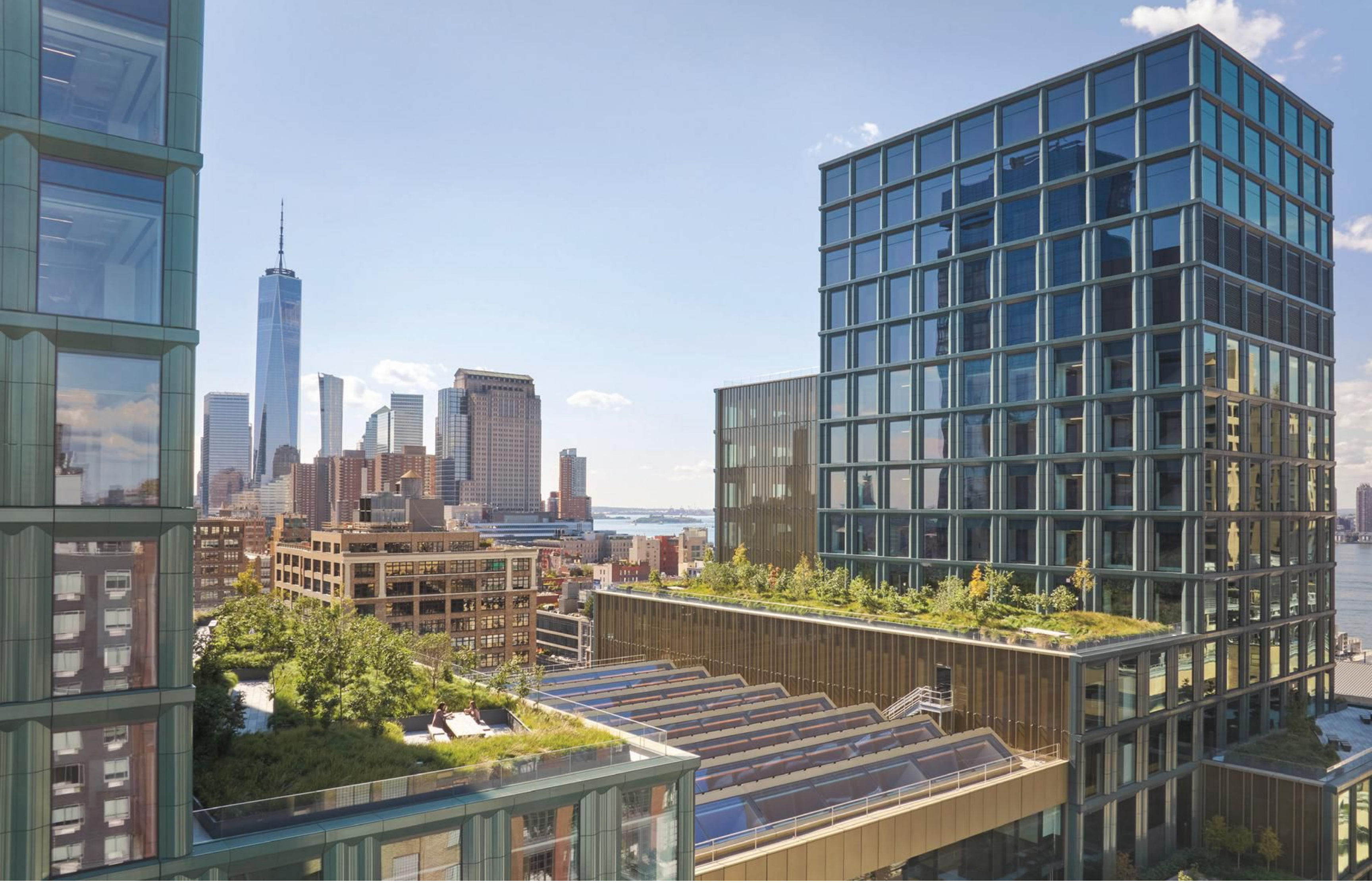
1 STEEL REINFORCING
2 VAPOR BARRIER
3 ALUMINUM OUTRIGGER
4 ALUMINUM SUBFRAMING
5 GALVANIZED-STEEL BACK PAN
6 TERRA-COTTA ANCHOR CLIP
7 INSULATED GLASS

roam wherever their tasks take them, with numerous places to meet, confer, or take a break in lounges that open to views.

Below grade are five additional studios, tucked between the side cores, three of which were built with high ceilings jammed with video tech and some 12 camera positions for programs like *The View* and *Good Morning America* that are filmed before a live audience of up to 200. To calibrate multiple audiences' moving into and out of the studios, viewers are ushered into a dedicated entrance, through a food hall (not yet built), into a pre-show lobby. To achieve the column-free spans necessary for the studios, truss frames fill the full height of the second floor to transfer the column loads from above. The trusses also suspend the ground floor and loading dock.

Above the base, the building steps back in lushly planted terraces, by landscape architect Scape Studio, to two office towers that top out the building at 290 feet.

A ninth-floor conference center connects to the 10th-floor Great Room via a pair of sculptural stairs that rise through a double-height opening. The Great Room is the headquarters' centerpiece, a gathering and event space that hinges the building's production floors below to offices above. Flooded with daylight through skylights supported by wood-clad beams, the room's 30-foot-high window walls open both north and south to outdoor terraces and panoramas of Lower Manhattan's tapestry



Terraces (above) and workspaces (right) offer sweeping views of the Hudson River to the west.

of rooflines and water towers. Its lounge furniture, along with a café and reading room, are intended to draw people from all over the building to relax, meet, and connect.

The all-electric building aims for LEED Platinum and cutting carbon emissions to 50 percent of New York's strict Local Law 97 carbon-emissions limit. A large-scale heat pump installation helps to meet that goal, along with a suite of tactics that include high-performance facades and heat recovery.

The IT-intensive long-span production facilities at 7 Hudson Square might have been built more cheaply in a low-rise suburban form, but Disney is nearly unique in seeing value in the potential of bringing creation and production together in intensively collaborative proximity. With tech and tastes morphing at lightning speed, Disney can quickly make changes and bring new ideas, new entertainment, and new formats quickly to market. ■

PHOTOGRAPHY: © DAVE BURK (OPPOSITE 2, AND TOP); GARRETT ROWLAND (BOTTOM)

Credits

ARCHITECT: Skidmore, Owings & Merrill

INTERIOR ARCHITECT: Gensler

ENGINEERS: Thornton Tomasetti (structural); Jaros, Baum & Bolles (m/e/p/fp/IT); Langan (civil and geotechnical)

CONSULTANTS: Cerami Associates (acoustics, IT, vibration); Atelier Ten (sustainability); Scape Studio (landscape); Heintges (facade)

GENERAL CONTRACTOR: Lendlease

CLIENT: The Walt Disney Company

SIZE: 1.2 million square feet

COST: withheld

COMPLETION DATE: December 2024

Sources

FACADE: New Hudson Facade (metal panels); Universal Concrete (precast concrete); NBK Architectural Terracotta, Construction Specialties (louvers)

ROOFING: American Hydrotech, Siplast

SKYLIGHTS: Linel

GLASS: AGC Interpane, Arnold Glass

ENTRANCES: CRL

ACOUSTICAL CEILINGS: Rockfon, Armstrong

PLASTIC LAMINATE: Wilsonart, Formica, Nevamar

SEATING: Poltrona Frau (theater); Miller Knoll, Andreu World, Davis, Allermuir

MCHAP Announces 2025 Finalists

BY PANSY SCHULMAN

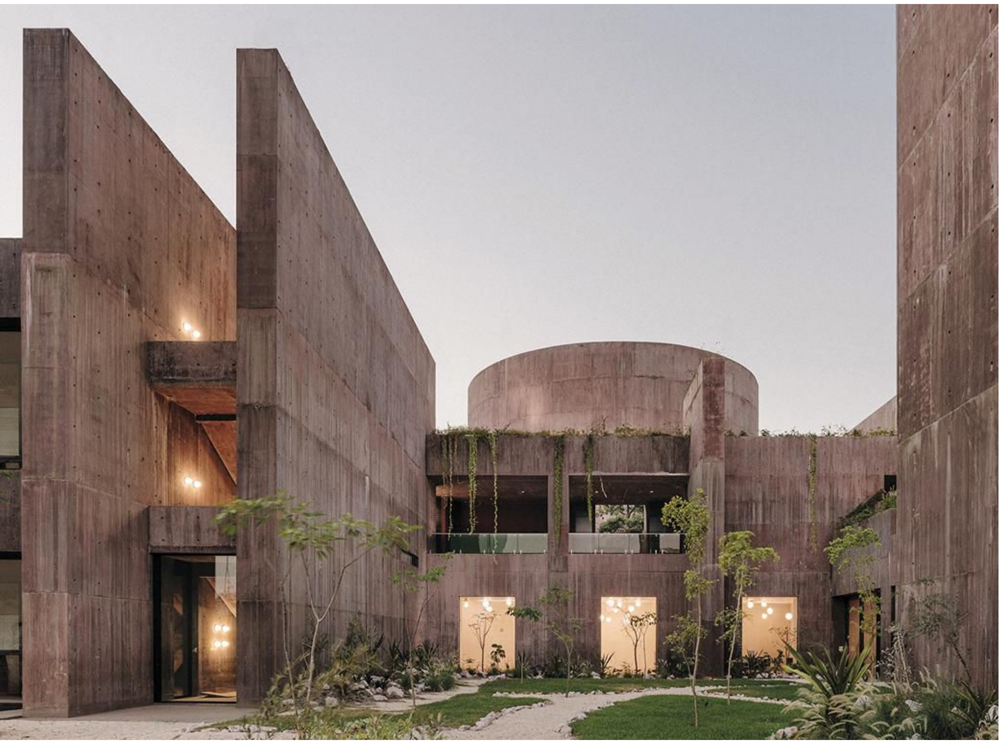
THE ILLINOIS Institute of Technology (IIT) College of Architecture, in Chicago, announced the finalists for the 2025 Mies Crown Hall Americas Prize (MCHAP) in February. The five recognized projects—two in Mexico, and one each in Argentina, Canada, and the U.S.—were selected from a pool of hundreds of anonymously nominated works from across the Americas in a nearly year-long process of deliberation that involved site tours and interviews with architects, design teams, and clients.

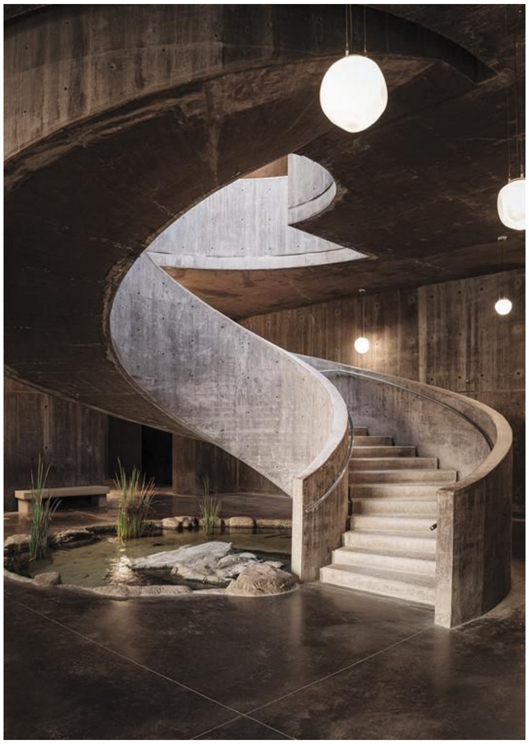
"This cycle, we have been inspired by the striking presence of each of the finalists, and their inventive responses to distinctive social and environmental contexts. But these projects show us that it's not only design leading the way," says prize-committee director Dirk Denison. "We also recognize the individuals and organizations who have made a commitment to architecture's contribution, through the civic and cultural initiatives behind these works."

The biennial award, established in 2013 by the IIT College of Architecture, this year honors the best works of architecture completed in North, Central, or South America between June 2022 and December 2023. Previous winners include the Anahuacalli Museum in Mexico City, by Taller | Marucio Rocha (2022), and Edificio E, Universidad de Piura in Piura, Peru, by Barclay & Crouse Architecture (2018). The winning project will be announced in a May 5 symposium at IIT, and its design team will be recognized with the MCHAP Award, the MCHAP Chair in IIT's College of Architecture, and $50,000 to fund research and a publication.

The 2025 jury includes Maurice Cox, Chicago's former planning director; Giovanna Borasi, director and chief curator at the Canadian Centre for Architecture; Gregg Pasquarelli, founding principal of SHoP Architects; Mauricio Rocha, founder of Taller | Mauricio Rocha and 2023 MCHAP winner; and Sofia von Ellrichshausen, founding partner of Pezo von Ellrichshausen and winner of the 2014 Prize for Emerging Practice.

Below are the five finalists, along with a short description of and collective jury statement about each project. ■





PHOTOGRAPHY: © JUAN MANUEL MCGRATH (2); RAFAEL GAMO (OPPOSITE, 2)

Centro de Investigación Mar de Cortés

Tatiana Bilbao Estudio
Mazatlán, Mexico

Conceived as a "living ruin," in violet-tinted concrete, the country's largest aquarium rethinks how humans relate to the natural world.

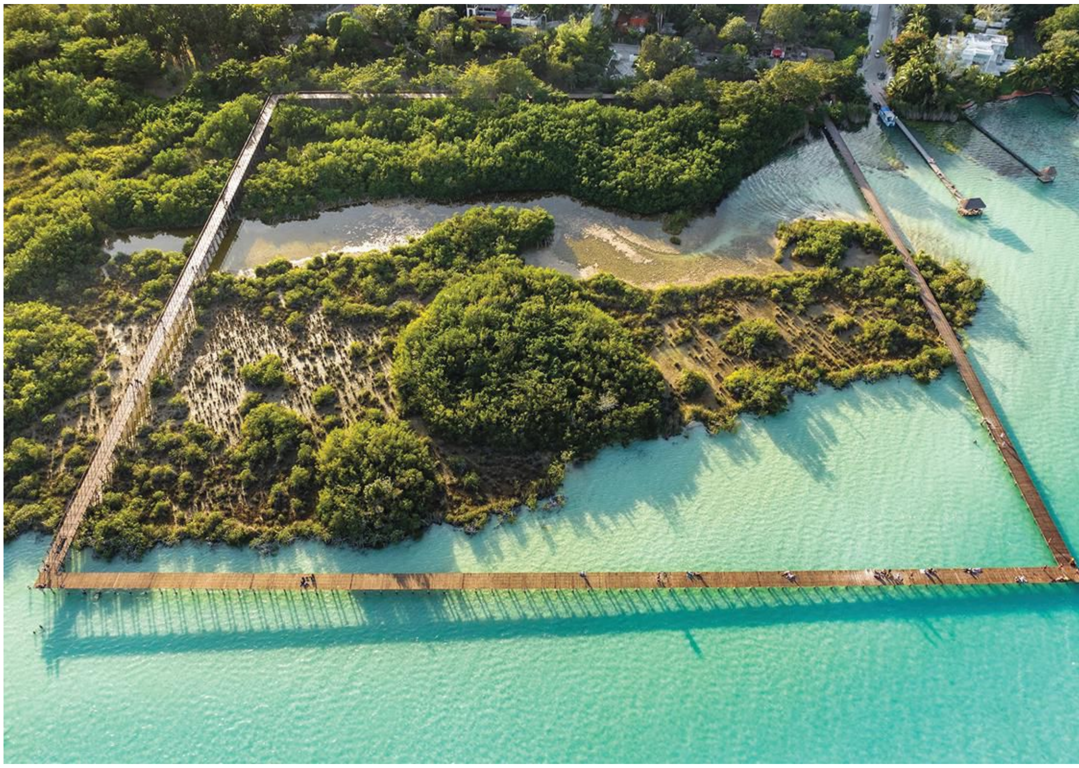
"Activating an underutilized park and lagoon of a seaside resort town, a massive series of walls is conceptualized as a discovered 'ruin' inhabited by birds, fish, plants, and water. This arrangement sets up a series of beautifully composed one-point-perspective view corridors, replete with dramatic oculi allowing light to frame the water displays. Visitors wander through a nonprescriptive circulation pattern, easily moving between moody indoor spaces, glowing tanks holding aquatic species, and outdoor gardens. The mechanical complexity of such a program is deftly concealed to allow for a fluid and effortless experience. A building driven by the spectacle of captured nature, it amazes and delights as it connects to the surrounding park landscape and paves the way for an elevated public architecture for the whole city."

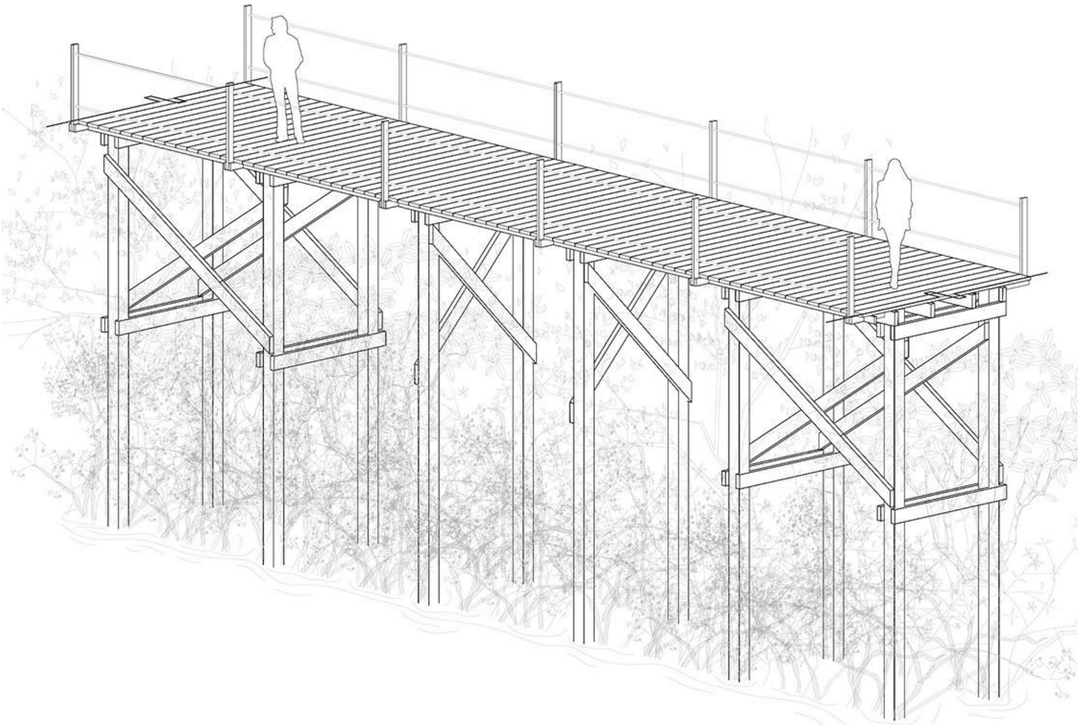
Ecoparque Bacalar

Colectivo C733
Bacalar, Mexico

An open-air museum showcasing the largest freshwater microbialite reef in the world is created on 700 feet of dock.

“A mangrove, a square, and a promenade: a strong idea that transcends its materiality. Rarely does a line, materialized into a passerelle, do so many things at once. This topography, slightly tilted to give each of its corners a different height and experience, manages to combine a healthy ecosystem with an open-air museum and public space for swimming, walking, and jogging, while offering users a perspective on recreation and learning. Paradoxically, this protective perimeter preserves nature while also allowing thousands of people to enjoy a highly fragile yet mostly privatized shoreline, heightening consciousness of this unique endangered ecosystem, and becoming part of the signature identity of Bacalar.”





Clínica Veterinaria Guayaquil

Adomo-Faiden

Buenos Aires

A disused building from the early 20th century is transformed into an urban veterinary clinic.

“Despite synthetic decisions and a sharp material palette, this subtraction within a preexisting house is in no way reductive. Rather, the generous volume of air adds to a wide range of readings of the new piece: a serene and ventilated waiting room stimulating interaction; a passage to a hidden plaza that draws the sidewalk into the backyard; a temple-like city lantern radiating at night. It is the ultimate political project, remaking the city one small piece at a time by recycling its structure on a tight plot and taking a normal program and elevating it to improve everyday life for humans and nonhumans alike.”

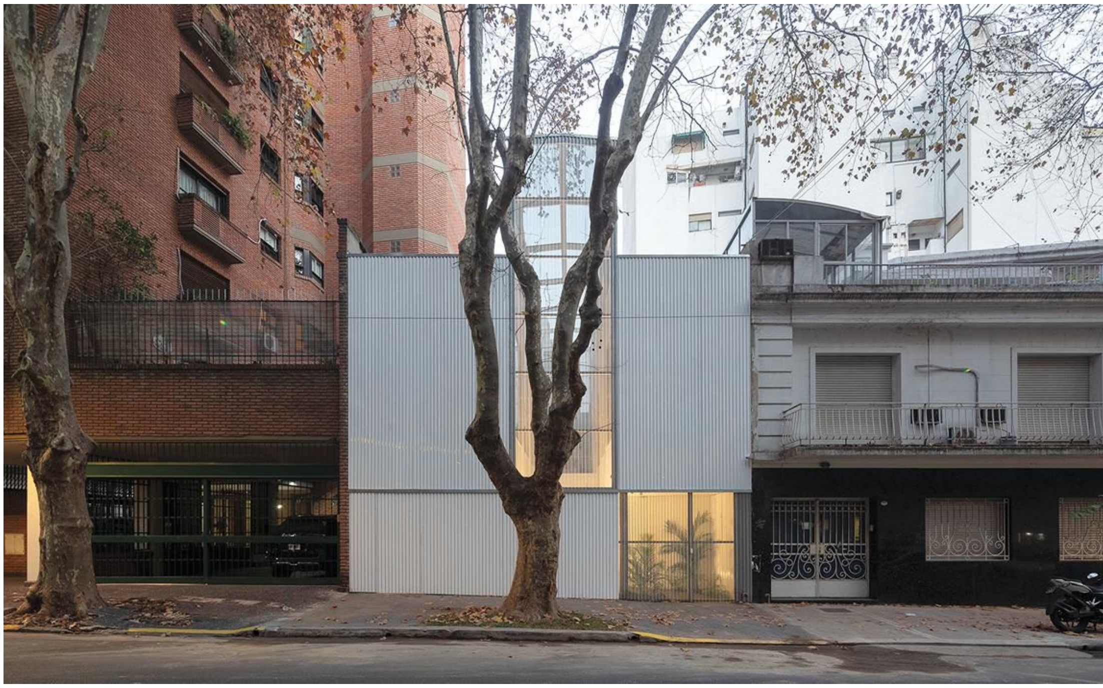


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Photo: Ryan Bent

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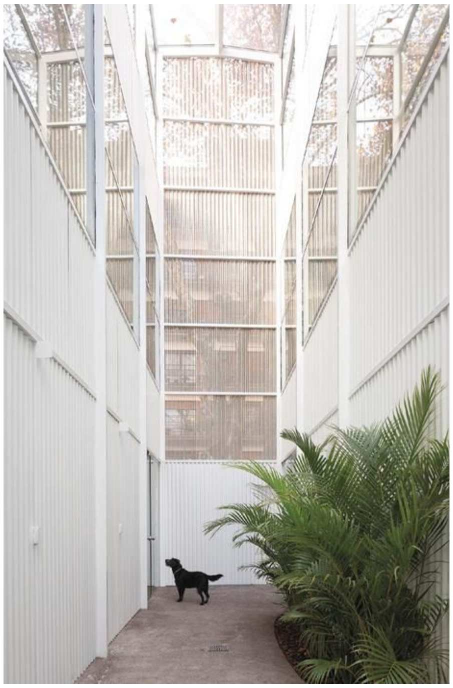

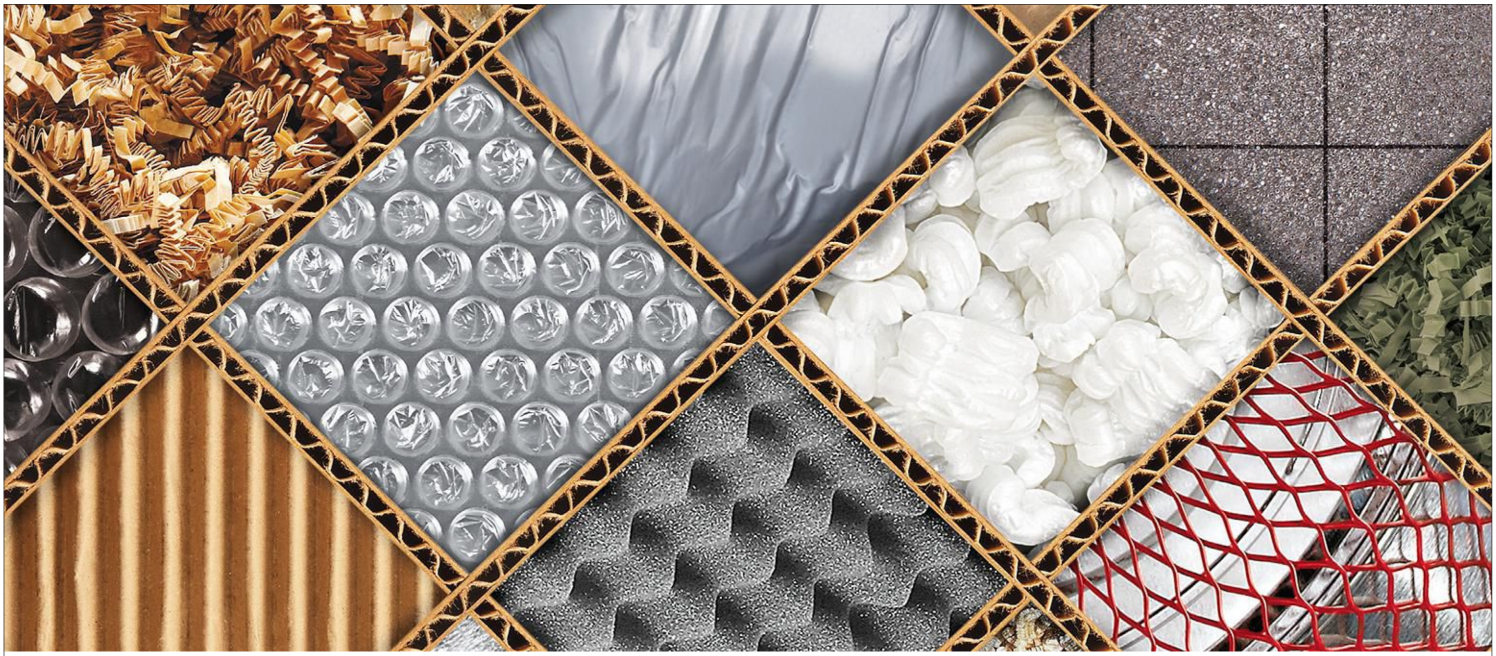

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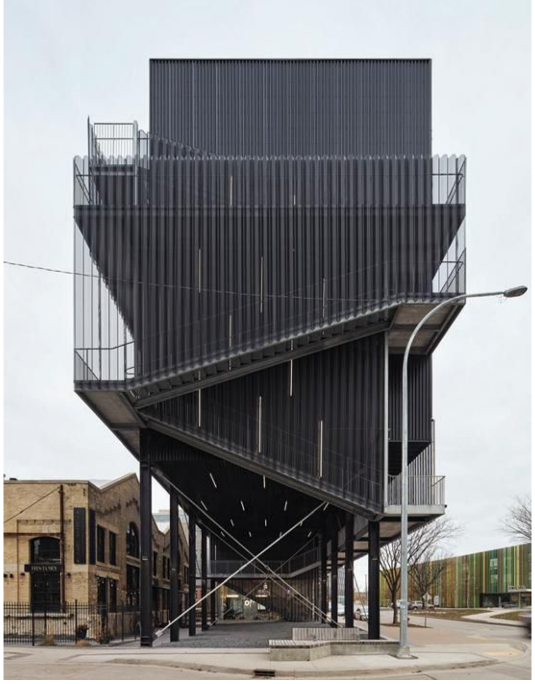
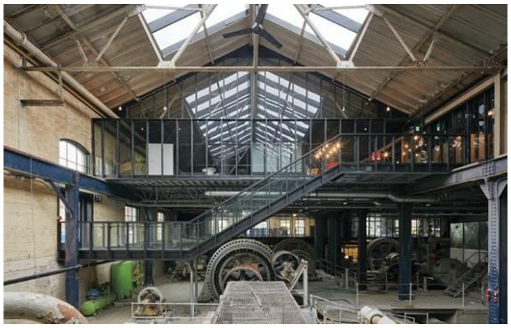


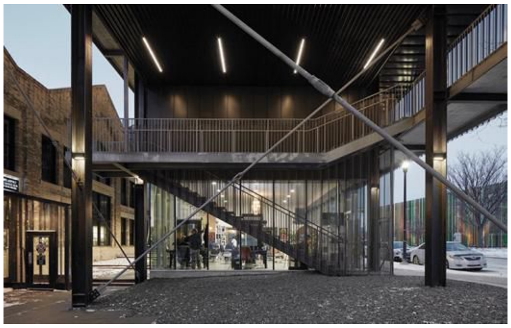
Pumphouse

5468796 Architecture
Winnipeg, Manitoba

A financially savvy design incorporates materials and technology from industrial boom times to adapt and expand a former pumping station into multifamily housing.

"The project builds a contemporary way of living within the memory of an industrial archaeology. A series of smart strategies adds new residential use, views, and private and shared spaces in a complex urban plot while maximizing the identity of the abandoned pump house and extending its precise and rigorous material language beyond its original enclosure. The small domestic interiors expand into shared spaces, and circulation animates the block in all directions. These units are elevated, making way for the use of alleys and a series of pockets of communal activities."





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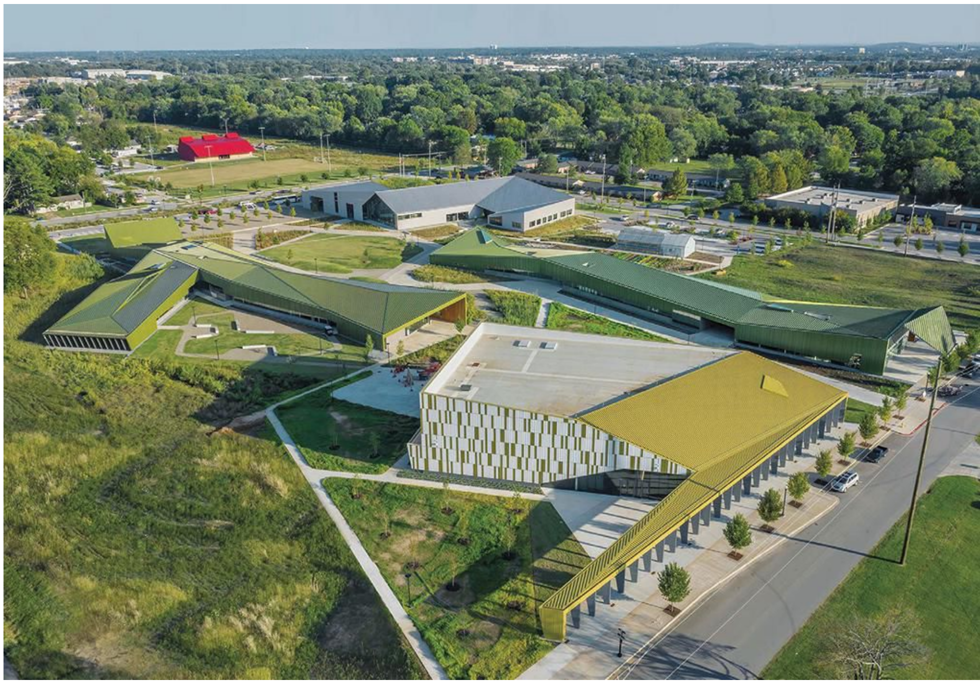
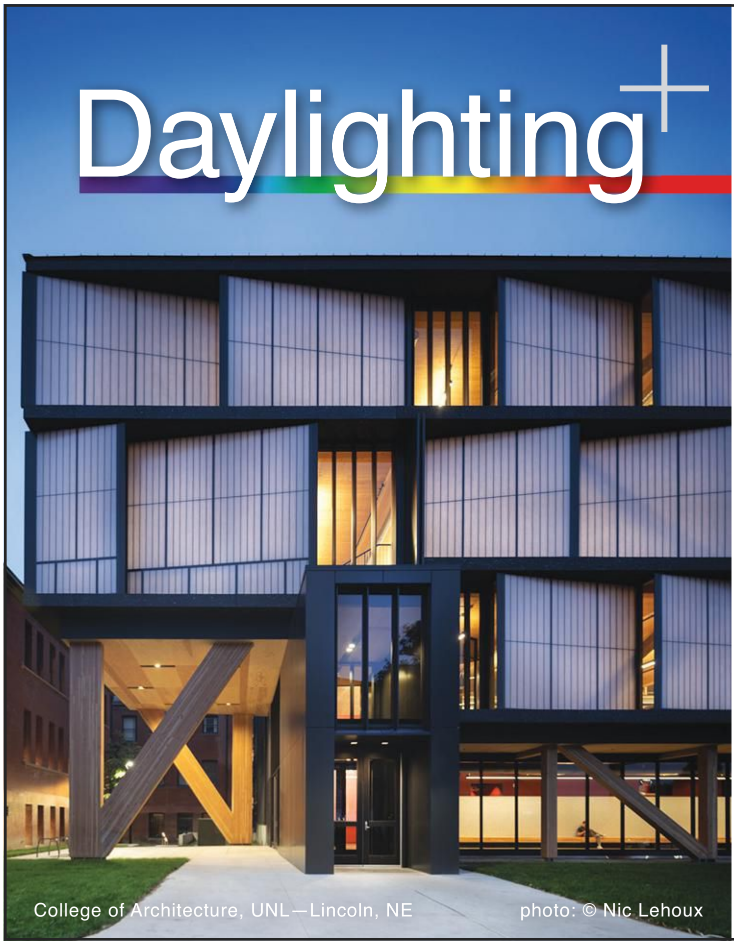


PHOTOGRAPHY: © JAMES BRITTAIN (OPPOSITE, 3); TIMOTHY HURSLEY



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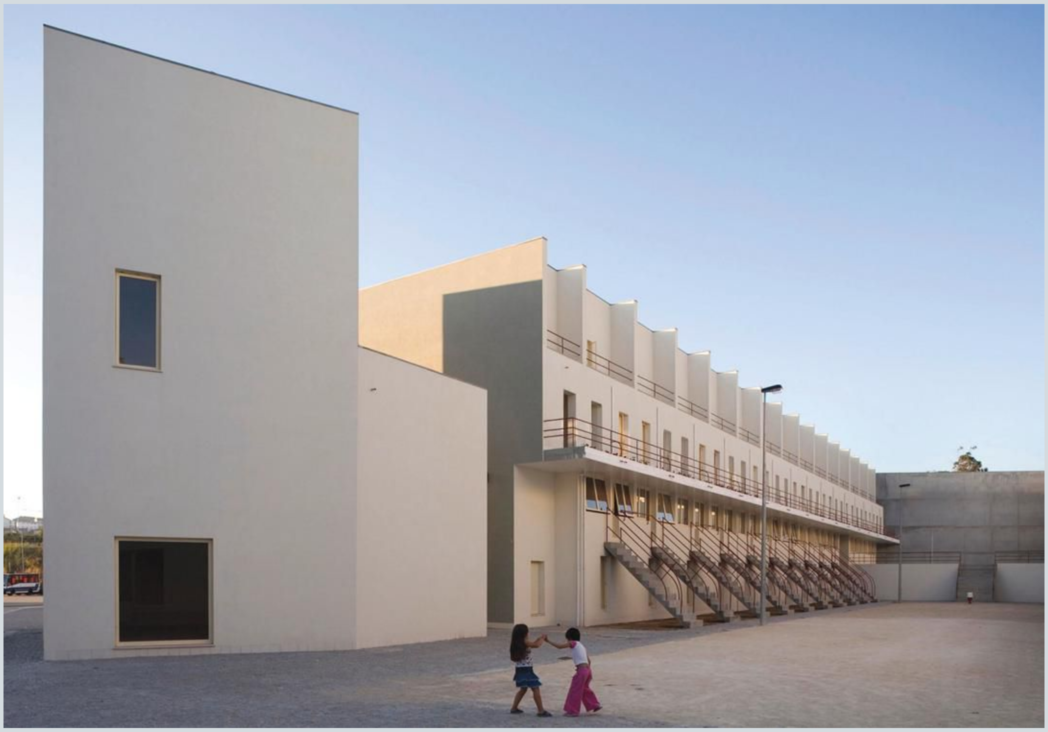

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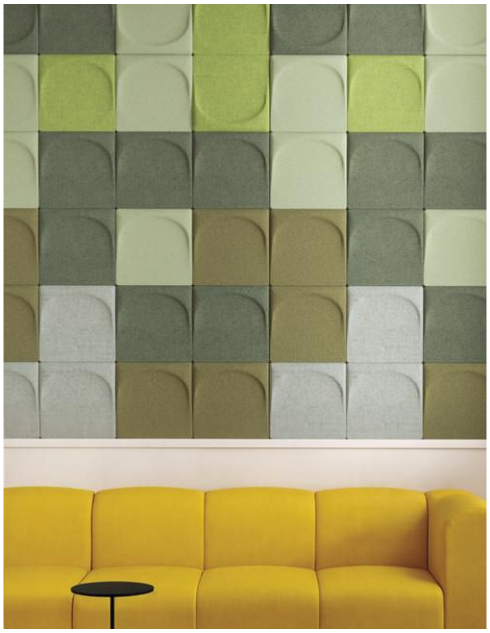
TRADE SHOW Stockholm Furniture Fair

BY MATT HICKMAN

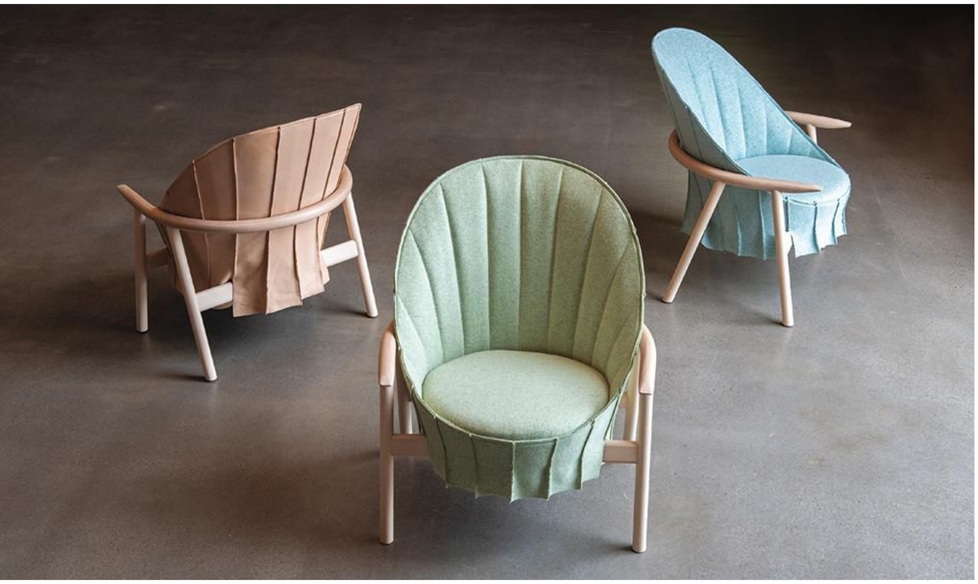
THE STOCKHOLM Furniture Fair returned to the Swedish capital's Stockholmsmässan fairgrounds February 4–8 for its 74th edition—and first under its newly instated director, the interior architect Daniel Heckscher. Comprising two halls, Scandinavia's largest furniture fair was more intimately scaled than in years past and had a more concentrated focus on the local—Swedish designers working for Swedish brands abounded. Still, there were plenty of contributions on display from farther afield. The fair's guest of honor was British designer Faye Toogood, who staged a prominently sited installation entitled *Manufracture*; the special *Italia Geniale* exhibition showcased classic and contemporary Italian design objects, as curated by Milan's Adi Design Museum; and the Greenhouse platform brought together nearly 60 emerging designers and design schools across the globe, from Nigeria to Northwest Arkansas. Meanwhile, one of the fair's most anticipated product launches was designed by a celebrated Japanese architect.

These notable new releases shown at the fair—and during the larger Stockholm Design Week festivities—encompass both international collaboration and homegrown talent produced by venerable Scandinavian brands. ■



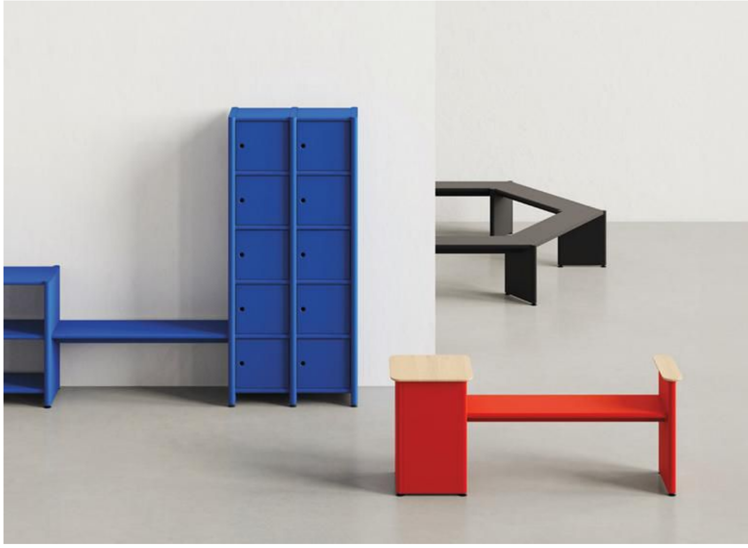
Drip

Serving double duty as both decorative wall panel and ambient noise-dampening sound absorber, the Drip series by Spanish studio Stone Designs, for contract furniture-maker Blå Station, suggests a thumbprint left behind in soft clay. Featuring magnetic fittings that allow for easy mounting (and moving), the acoustical panels—hot-molded from polyester form felt that incorporates a high percentage of recycled plastic material—can be oriented four different ways to create a plethora of eye-pleasing pattens.
blastation.com



HidaHida

A collaboration between 132-year-old Swedish furniture mainstay Gärsnäs and the Tokyo studio of architect Kengo Kuma, this easy chair—available with a beech or oak frame and a seat and back of recycled felt—takes its name from the Japanese word for "drape." Indeed, the fabric (or leather) upholstery evokes a jacket or throw blanket slung over the back of an armchair. "Often the backs of chairs are hard, but here the felt is light and comfortable," says Kuma. "A hanging skirt at the back elevates the chair's conviviality and associates it with elegance and fashion."
Garsnas.se



Soft Edge

Designed by busy Stockholm studio Form Us With Love, this versatile modular furniture system is "softened" in a move to expand storage-brand Dalform beyond its target market of schools, hospitals, and other public facilities, to offices, hospitality settings, and more. Combining the company's expertise in sheet metal with construction that embraces soft folds, the system, with its endless configurations, spans seating, storage, and shelving, while adding new materials such as wood and upholstery to the mix.
dalform.se

Gio

A tribute to Italian architect Gio Ponti's mastery in marrying modernity with tradition, this statement glass light fixture "captures the essence of a chandelier's skeleton, focusing on fundamental geometric shapes," says Venice-born, Stockholm-based designer Luca Nichetto. He was also inspired by his own familial ties to Murano glass-working when creating his latest for Danish-brand &Tradition. Available in several color combinations and two sizes, the tripart chandelier lends itself to both large venues and intimate settings.

andtradition.com

Circulus

This "never-ending" sofa system by Italian designer Mario Ferrarini, for Offecct, strives to live up to its name, offering myriad configurations, a multitude of frame and fabric colors, and versatility and longevity (the upholstery can be switched out without specialized tools). Suitable for both office environments and larger public spaces, the sofa's adaptability extends to its afterlife: it can easily be dismantled, and its steel and aluminum components, which already incorporate a high percentage of recycled material, can be given new use again.

offecct.com

Grace and Garbo

In his latest collaboration with Johanson Design, Alexander Lervik melds style informed by Art Deco and the Bauhaus with machine learning, the Stockholm designer's first foray into AI. The result of manually refining 3D models generated by that technology from sketches that were themselves hand-drawn, the Grace chair and Garbo armchair take their names and inspiration from two 20th-century film stars seen as paragons of elegance, Grace Kelly and Greta Garbo.

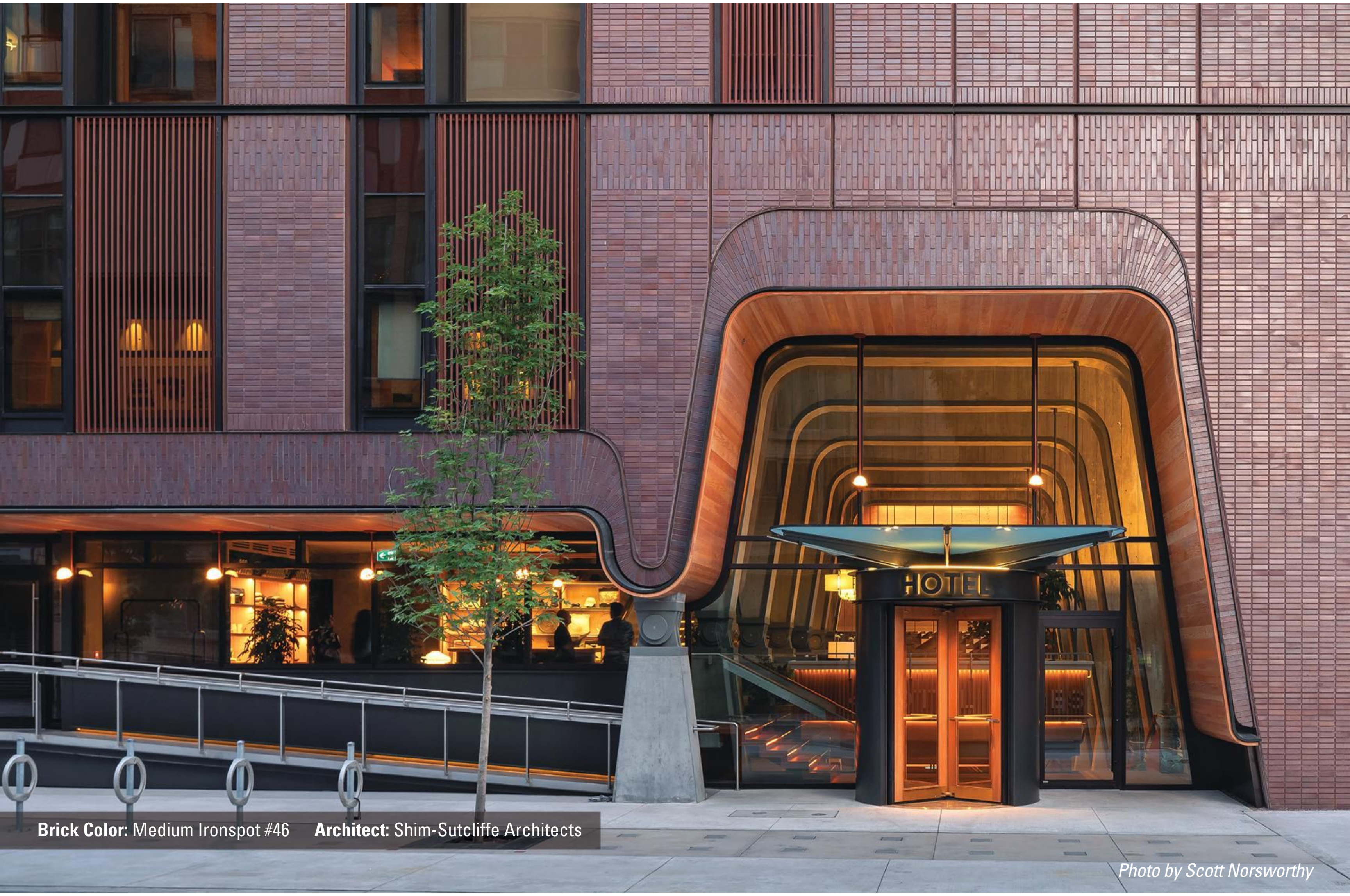
johansondesign.com

String Pocket

Launched in 2005 as the compact younger sibling of Nisse and Kasja Strinning's 1949 String shelving system, this 15-cm-deep bookshelf was tailor-designed by Nisse to accommodate paperbacks. In celebration of its 20th anniversary, four new colors, inspired by Stockholm landmarks, are available: an homage to historic Oxtorget Square in warm red; a lush green tribute to Tegnérlunden park; the dark gray of Brutalist concrete in Sergels torg; and the deep blue of the bay of Nybroviken.

stringfurniture.com

ACE HOTEL TORONTO
ONTARIO, CANADA



Brick Color: Medium Ironspot #46 **Architect:** Shim-Sutcliffe Architects

Photo by Scott Norsworthy

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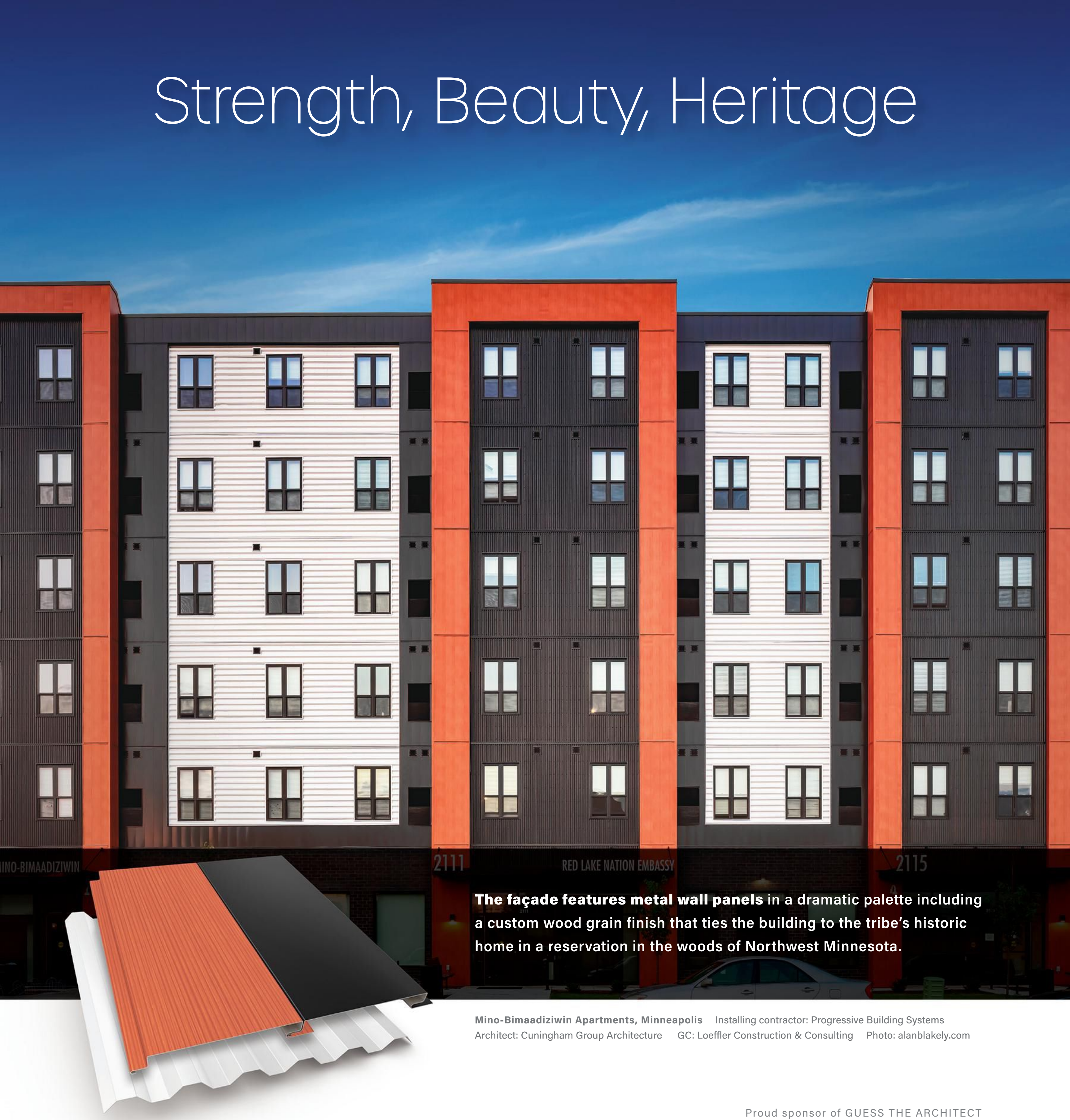

The façade features metal wall panels in a dramatic palette including a custom wood grain finish that ties the building to the tribe's historic home in a reservation in the woods of Northwest Minnesota.

Mino-Bimaadiziwin Apartments, Minneapolis Installing contractor: Progressive Building Systems
Architect: Cuningham Group Architecture GC: Loeffler Construction & Consulting Photo: alanblakely.com

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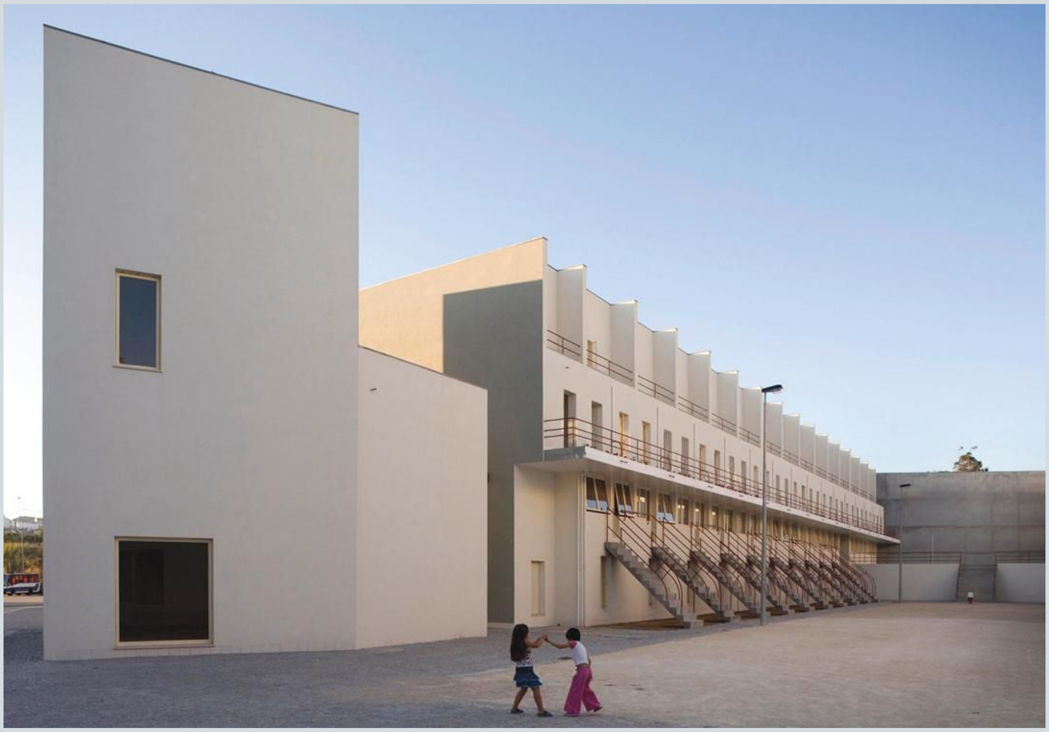


THIS STARK, UNADORNED HOUSING COMPLEX WAS DESIGNED SOON AFTER THE SOUTHERN EUROPEAN COUNTRY IN WHICH IT IS LOCATED TRANSITIONED FROM DICTATORSHIP TO DEMOCRACY. INITIALLY DESIGNED FOR LOW-INCOME CITY RESIDENTS, IT STOOD HALF-BUILT FOR 30 YEARS UNTIL IT WAS FINALLY COMPLETED—BUT IN PART DUE TO THE FAME OF ITS ARCHITECT, A PRITZKER PRIZE–WINNER, IT ENDED UP ATTRACTING A SUBSTANTIAL POPULATION OF UPWARDLY MOBILE PROFESSIONALS. “IN A CERTAIN SENSE,” THE ARCHITECT WROTE, “THE INTEGRITY OF THE FIRST DESIGN HAS BEEN LOST IN THE REVISION.”

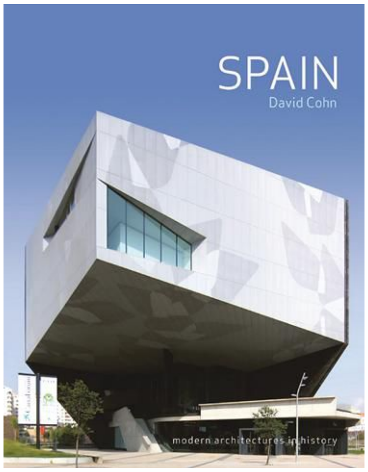
Franklin Court, which was conceived to honor Benjamin Franklin and is located in his hometown of Philadelphia, was designed by the firm of **Venturi, Rauch, and Scott Brown** and opened in 1976. In sharp contrast to more cheerful modes of Postmodernism that draw freely on historical motifs, the ghost house at Franklin Court suggests that the history of the site remains intangible and out of reach.

By entering, you have a chance to win a $500 Visa gift card. See the complete rules and entry form online at architecturalrecord.com/guessthearchitect.

PHOTOGRAPHY: © FERNANDO GUERRA/ALAMY STOCK PHOTO (TOP); © IZZY KORNBLATT (BOTTOM)

Spain: Modern Architectures in History, *by David Cohn. Reaktion Books, 344 pages, $40.*

The new book by Madrid-based architecture critic and RECORD *contributing editor David Cohn traces the roots of modernism in Spain, from the Spanish Enlightenment through the 21st century. But the book primarily centers on the years 1910–2008, a period that includes the fall of a monarchy, the turbulent Second Republic in the 1930s, a civil war, and the dictatorship of Francisco Franco. Following is an excerpt that explores the short but influential career of the Barcelona architect Enric Miralles, whose inventive projects from the 1980s and '90s brought him international recognition.*



THE MOST spectacular debut at the 1992 Barcelona Olympics was the Archery Range at Vall d'Hebron by Enric Miralles and Carme Pinós, his first wife and partner. Their winning competition design transformed a modest commission for a pair of pavilions, little more than dressing rooms, into a radical formal manifesto (1989–91, partially demolished). The design created a new imaginative world of forms, but its vision represented a repudiation of the dry Minimalism of his former employers, Albert Viaplana and Helio Piñón, which Miralles and Pinós swept away in an energizing surfeit of creative inventiveness.

The two pavilions were banked into the terrain overlooking the shooting range. In the surviving structure, a series of tilting and bent roof planes jostle together at different angles. Supported by tilting columns, they project over a sequence of rhythmically angled and curving walls topped by clerestory windows. The interiors are further convulsed by the sinuously curving back wall and angled partitions. The raw finishes and earthy atmosphere recall the fresh, tactile Mediterraneanism of José Luis Sert, while the formal inventiveness and fusion into the landscape bring to mind Gaudí's Park Güell. But the fragmentation of the compositions into repetitive, varied plays of angled and curving elements in both vertical and horizontal planes create a music of their own, complex, dynamic, and lyrical. The method could be likened to a hyper-agitation of the modular, cellular designs of Organicism, while anticipating the formal options opened by computer-aided design. These qualities extend to the calligraphic plans, which raise architectural draftsmanship, on the eve of its disappear-

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ance, to the level of a new art form.

Projects like the Olympic Archery Range helped launch Miralles internationally. But his career was cut short with his premature death from a brain tumor in 2000, at the age of 45. His trajectory blazed brightly through the 1990s, as he completed works begun with Pinós (1984–89) and began competing for international work with his second wife, the Italian architect Benedetta Tagliabue (1993–2000).

The most memorable work he completed with Pinós is the Igualada Cemetery (Province of Barcelona, 1985–94). As with the Archery Range, the design fuses architecture and landscape, with broken lines of repetitive elements, in this case the inclined berms of the mortuary niches that shape and meld into the terraced terrain, creating a descending, winding route to a small plaza. Visitors are immersed in a semi-urban, semi-natural setting, at once earthy and otherworldly.

The partnership with Pinós disciplined and focused Miralles' torrential creativity. His subsequent designs, on his own and then with Tagliabue, were more ambitious and daring, challenging every formal and structural preconception. In one case, the outlandish structure for a basketball stadium in Huesca (1994), in which eccentric roof trusses were supported on cables spanning crosswise below them, collapsed during construction. In another, the 22-story tower for Gas Natural in Barcelona (1999–2006) incongruously sported a massive horizontal volume cantilevered from its midsection, the "aircraft carrier," as Tagliabue called it. More successful were the flowing interiors of the National Center of Rhythmic Gymnastics in Alicante (1993, begun with Pinós), where visitors move on curving ramps and raised platforms around the performance and training spaces, or the student union at the University of Vigo in Galicia (1999-2003), a semicircular raised structure poised on the edge of a mountainside terrace.

Miralles and Pinós's Olympic Archery Range, built for the 1992 Summer Olympics in Barcelona, has been partially demolished.

PHOTOGRAPHY: © DAVID COHN

In the mid-1990s, Miralles and Tagliabue won a series of international competitions that culminated with their 1998 commission to build the Scottish National Parliament in Edinburgh, finished by Tagliabue in 2005. The project was their crowning achievement, though it was plagued by changes in program, cost overruns, and hostile, politically charged

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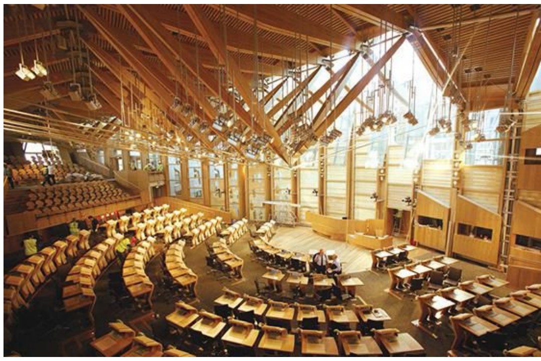
press coverage, receiving a degree of public scrutiny unheard of in Spain. Their design is full of brilliant moments but fails to cohere as a whole, perhaps precisely because they sought to upend traditional representations of political authority. “This is not a building in a park,” they wrote, “but rather the form of people gathering, physically shaping the act of sitting together.” The project thus eschews the iconic for more Organicist ideas of psychosocial and phenomenological space, which can be traced in part, within Miralles’s wide-ranging formation, to his early friendship with Alison and Peter Smithson.


Scottish Parliament was completed by Tagliabue after Miralles’s death.

Composed intuitively from the inside out, the building is a collage of heterogeneous functional elements: the main debating chamber, visitors’ spaces, a tower housing committee hearing rooms, and a multistory slab for members of Parliament’s offices. The embracing, curving spaces are naturally lit, often from multiple directions, and often with the indirect, dappled light of the Organicists’ “Essential Forest.” This effect is augmented by what Tagliabue describes as the “visual vibration” of surfaces and details, created by the repetitions and variations of visual elements. This can be seen in the sweep of notched, irregular wood desktops for MPs in the Debating Chamber, or its roof assembly of heavy timber trusses interlaced with thin stainless-steel tension rods. The latter illustrate a characteristic design strategy, in which the architects separate assemblies into contrasting components so that each can express a specific tectonic “task.”

Miralles’s and Tagliabue’s best-known work in Barcelona, the renovation of the Santa Caterina Market in the Gothic Quarter (1997–2005), features a similar layering of structural elements, filtered natural light, and visual vibration, transforming the dour original 1845 structure into a vibrant field of incident, as exemplified in their new roof, an undulating carpet of ceramic tiles splashed with colors taken from fruit and produce. The intervention extended to the market’s depressed surroundings. The architects demolished the back of the structure to create a small plaza bordered by two modest new towers of senior housing, and sutured the urban wounds left by an incomplete 19th-century boulevard with small, focused interventions. For example, they narrowed the avenue’s aborted path to create a pedestrian-scaled gateway framed by new public housing that was literally extended from existing buildings.

This urban microsurgery was an advance over the wholesale demolitions of the 1980s under Oriol Bohigas in the Raval, and Postmodern concepts of morphological urban space in general. It permitted renewal and the reduction of unhealthy densities in the Gothic Quarter without erasing its historic identity and idiosyncrasies. As in the Scottish Parliament and other works, Miralles and his partners pioneered a singular path forward out of the formal obsessions of the era, though with a creative flair that few could match. Pinós and Tagliabue continued to develop their individual lines of work from these premises. But one can only wonder how Miralles himself might have evolved. As fate would have it, he was buried in the Igualada Cemetery, in a tomb overlooking its small plaza from an upper terrace, beside a solitary cypress. ■

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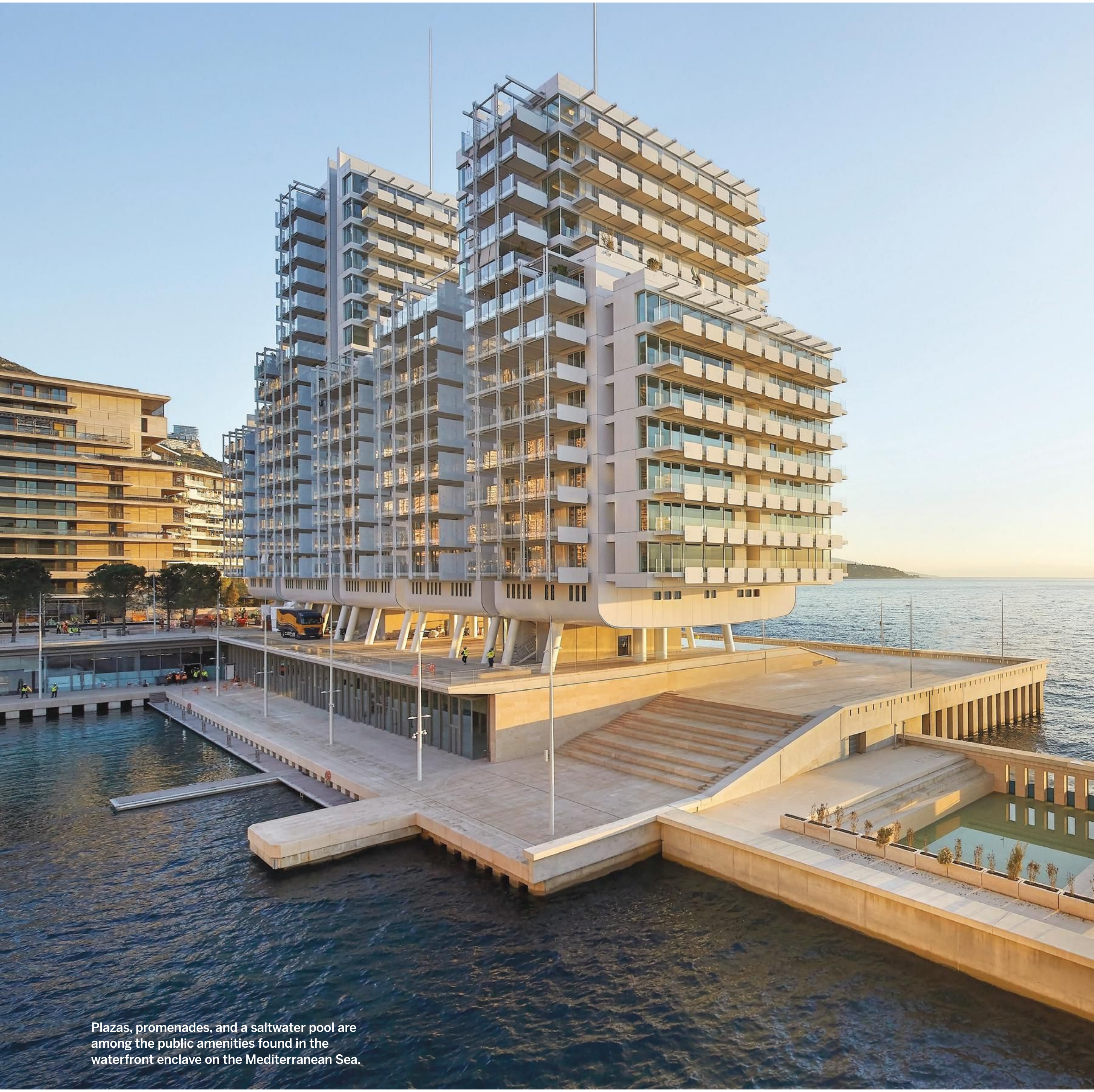
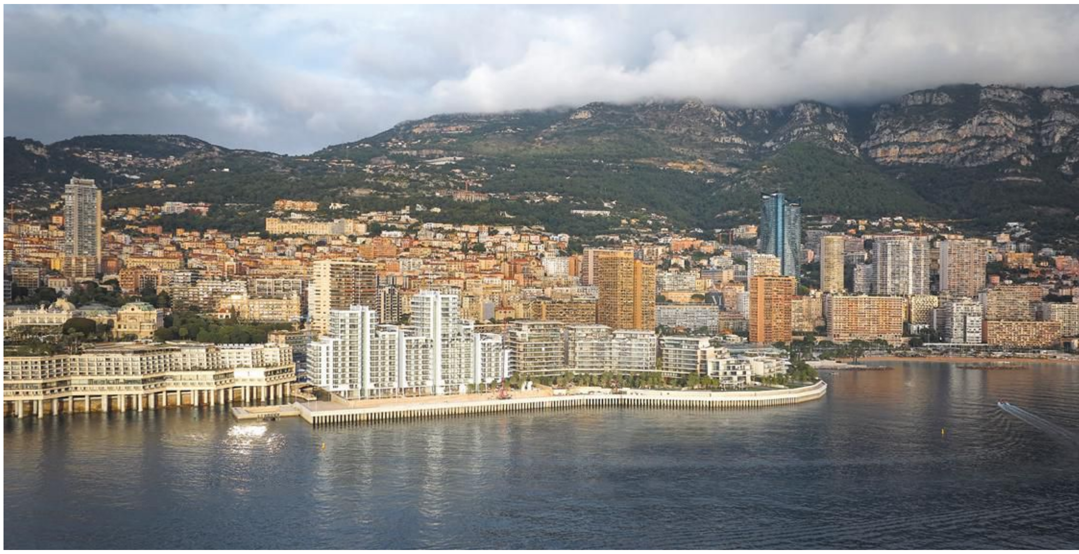
LANDSCAPE

MONACO'S MARETERRA DISTRICT EXTENDS THE TINY PRINCIPALITY'S FOOTPRINT. **BY ANDREW AYERS**



Plazas, promenades, and a saltwater pool are among the public amenities found in the waterfront enclave on the Mediterranean Sea.



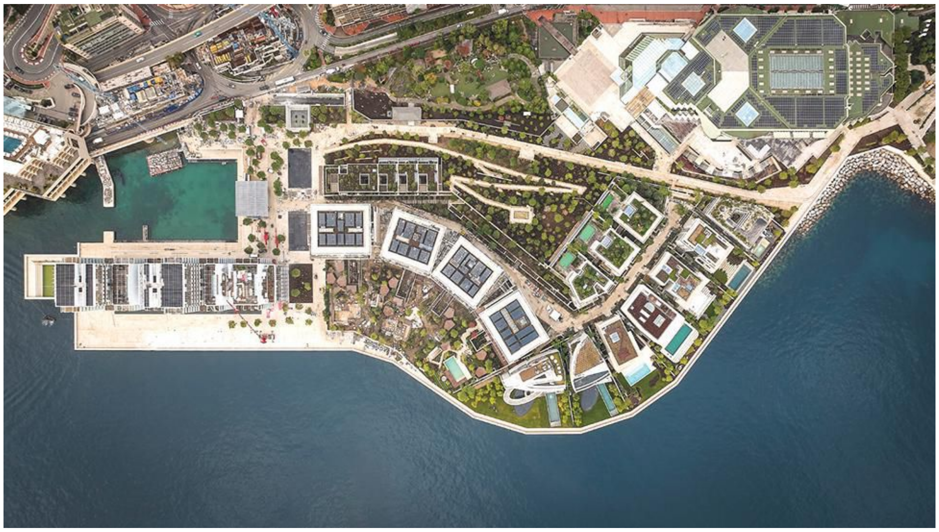
PHOTOGRAPHY: © HUFTON + CROW

THE PRICE OF FREEDOM is always high. When, in 1861, the principality of Monaco sought to ensure its independence, it ceded 95 percent of its then territory to France. Reduced to a tiny dot on the map, the sovereign city-state—which ceased taxing residents in 1869, thanks to the enormous income generated by its casino—expanded its territory seven times between 1907 and 2002. On each occasion, land was wrested from the sea, taking Monaco's surface area to a total of 0.8 square miles. In December 2024, Prince Albert II inaugurated what may well be the principality's last terrestrial expansion, a 15-acre neighborhood that increases its landmass by 3 percent. Baptized Mareterra—Latin for "sea and land"—the $2 billion development includes 10 villas, four townhouses, 110 very large apartments, underground retail and exhibition areas, and—a revolution for Monaco—2.5 acres of publicly accessible outdoor space.

"One might consider that the best way to preserve our oceans would be to build nothing, either on the seabed or the coast," admitted Céline Caron-Dagioni, Monaco's minister of Public Works, the Environment, and Urban Development, at the Mareterra launch event. Monaco's problem, she continued, is that its population is expanding—as, indeed, is the number of coastal inhabitants the world over. "If our goal is to create a harmonious cohabitation between humankind and the sea, we must invent solutions. They will never be perfect, but we must find the least harmful." That was Monaco's aim with Mareterra, which Caron-Dagioni hoped would stand as an example for similar projects in the future.

Master-planned by French architects Valode & Pistre following a 2013 design competition, Mareterra is the sequel to a far more ambitious Norman Foster–planned expansion that was dropped, say officials, because its environmental impact would have been too great. In place of the Dubai-style archipelago that Foster was tasked with producing, Mareterra restricts itself to the underwater coastal shelf, thereby preserving today's marine currents. "At a depth of 115 feet, the isobathic curve follows the coastline as it was 8,000 years ago," explains Denis Valode, founding partner at Valode & Pistre. "That gives Mareterra a very natural form. We also constructed a 40-foot-high hill, to avoid the artificial flatness of many land-reclamation schemes."

The first step in building this major piece of civil engineering was the creation of seafloor embankments, on which a series of giant concrete caissons were then laid, following the line of the isobathic curve. Each weighing 11,000 tons and rising above the waterline, the caissons are hollow, which helps dissipate the energy of stormy seas. The next step was to fill the space between them and Monaco's existing coast with 827,000 tons of vibro-compacted sand (sourced in French and Sicilian quarries), through which hundreds of piles were then driven down to bedrock. Concrete foundations provide the base on which the neighborhood rises. Efforts to mitigate Mareterra's environmental impact included removing fish trapped behind the caissons, replanting colonies of *Posidonia oceanica*, a Mediterranean seagrass that plays a key role in the marine ecosystem, and scraping the



Incorporating trees and native plants intended to foster biodiversity (left), the district features generous swaths of open green space (bottom).

surface of the caissons' high-resistance concrete to allow them to harbor sea life.

In its urban planning, Mareterra breaks with previous Monégasque practice in more ways than one. Not only is it far less dense, due to the open public space—an amenity unheard of in prior developments—but also because there are no skyscrapers. Building heights rise progressively from the three-, four-, and five-story villas in the northeast—two of which were designed by Tadao Ando, one by Foster, and another by Stefano Boeri—to the 18 levels of Le Renzo in the southwest, the flagship condominium conceived, as its name suggests, by Renzo Piano Building Workshop (everything else is by Valode & Pistre). While the villas, intended for billionaires, are essentially invisible from the public spaces, Le Renzo is the signature architectural project that gives Mareterra its identity. Pilotis-mounted, cantilevered, and aluminum-clad, it resembles the love child of Ron Herron's avant-garde *Walking City* for Archigram and the consumer-economy extreme of behemoth cruise ships.

While Mareterra plays it very safe in terms of the accommodation it offers, the district does stand out in one respect: its landscaping. Designed by Michel Desvigne, it eschews the Riviera tradition of exotic ornamental gardens for something much more understated and ecologically serious. "It's not merely a decorative backdrop," declares Desvigne. "It's a new piece of coastal territory, featuring all the plant species you would find in the Mediterranean," from underbrush to the umbrella pine. With soil depths that are unusually generous for the circumstances, a residents' charter that imposes the same species on Mareterra's private gardens, and a continuity with the seashore planting of the next-door Larvotto quarter, a green corridor is formed that should attract indigenous fauna. Moreover, the public spaces are beautifully designed, with blond Burgundy stone, in both rough and smooth finishes, that forms pool beds, piazzas, and pathways, while the numerous aquatic features include a seawater swimming pool, a 2,600-foot-long stream zigzagging down the hill, and sheets of reflecting water on the land side of Le Renzo, where the neighborhood meets the old shoreline. If any aspect of Mareterra should serve as an example for the future, it surely is this. ■

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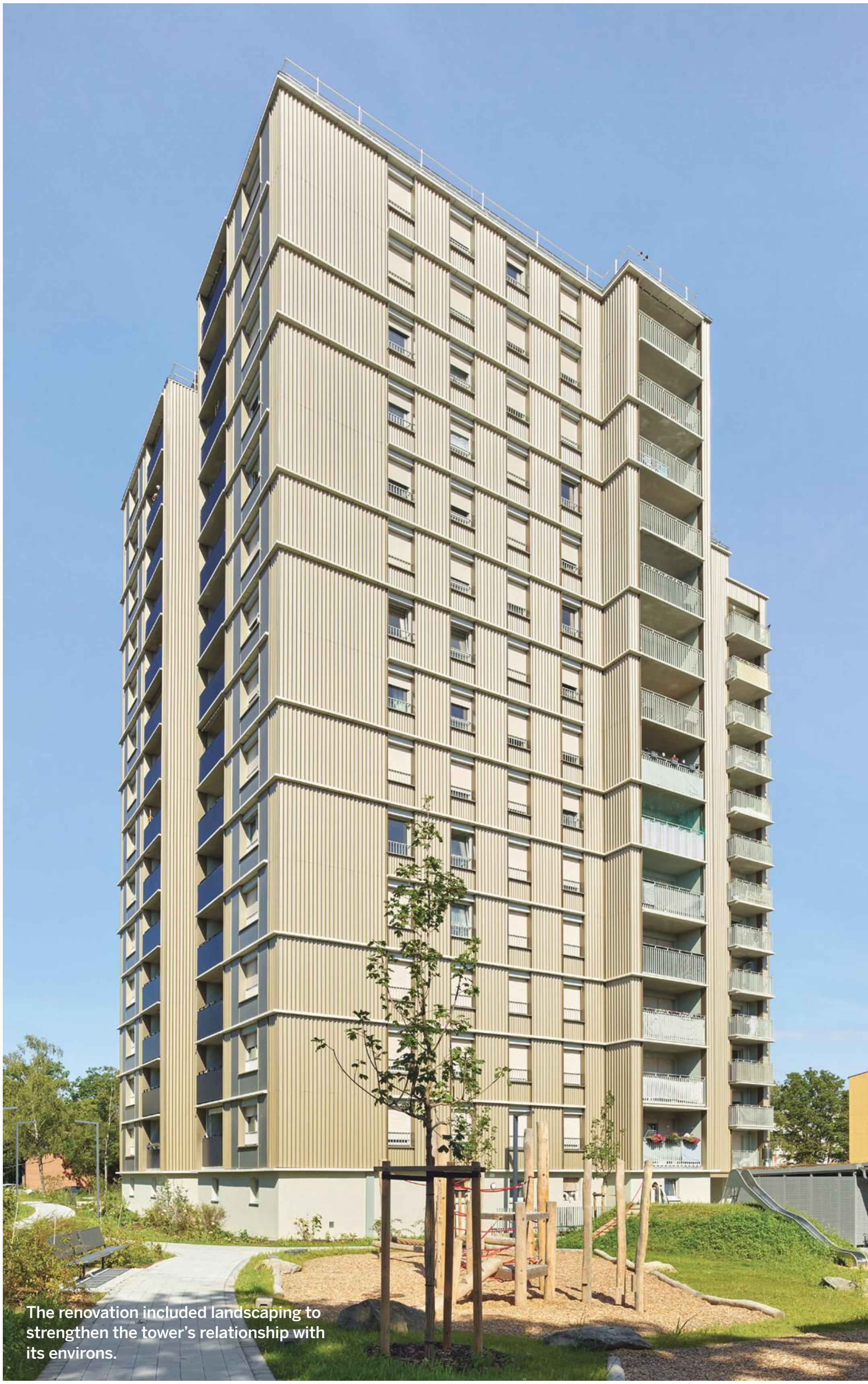
Face Off

A German social housing tower is reclad with solar panels.

BY MATTHEW MARANI



The renovation included landscaping to strengthen the tower's relationship with its environs.

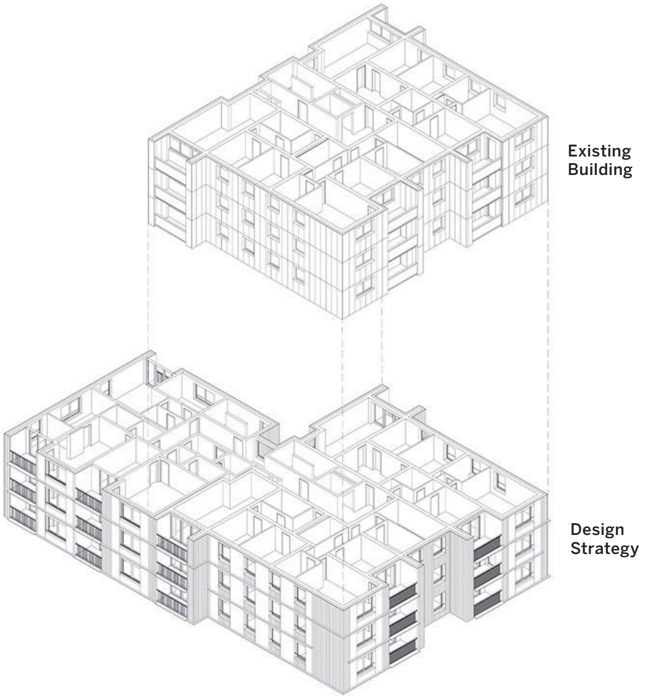
THE SMALL Bavarian city of Regensburg, like other urban areas in southern Germany, engaged in a postwar building boom, which continued into the 1960s, to house the city's growing industrial workforce. StadtBau Regensburg (SR), a city-owned development company, built over 4,000 social housing units during this period. Those now aged structures require overhauls, so, to keep the developments viable, SR has embarked on several substantial renovations to bring them up to contemporary building-performance and occupant-comfort standards.

One such project is a 14-story tower with 58 units, dating from 1967, which has undergone its own modernization and the addition of a conjoined tower, led by Munich-based architect studiomolter. Most conspicuously, the project, completed early last year, entailed cladding it in 8,300 square feet of photovoltaic (PV) panels and recycled corrugated-aluminum sheets.

The existing 64,600-square-foot tower block was built of poured-in-place and precast concrete and enveloped in gray fiber-reinforced concrete (FRC) panels. Within, the mechanical systems and residential appliances were powered by outdated greenhouse-gas-emitting systems. The initial redevelopment plan, from 2018, was to build an adjoining 34,900-square-foot building comprising three residential units per floor, with an egress stairwell on its eastern flank—new fire-safety regulations rendered the sole existing stairwell, within the old building core, insufficient. The existing apartments were to be renovated, in line with those of the new, and both would be wrapped in a more thermally robust skin of new FRC panels and mineral wool insulation. For the duration of the project, beginning in 2018, the tenants were gradually and temporarily relocated to nearby apartments also owned by SR.

Germany's increasingly stringent material circularity rules had made it difficult for the developer to dispose of similar FRC cladding. The product is often unsuitable for recycling, due to its heterogeneous composition; steel or synthetic fibers can entangle machinery and adhere to crushed material. So they decided to

PHOTOGRAPHY: © ROLAND HALBE, EXCEPT AS NOTED


Existing
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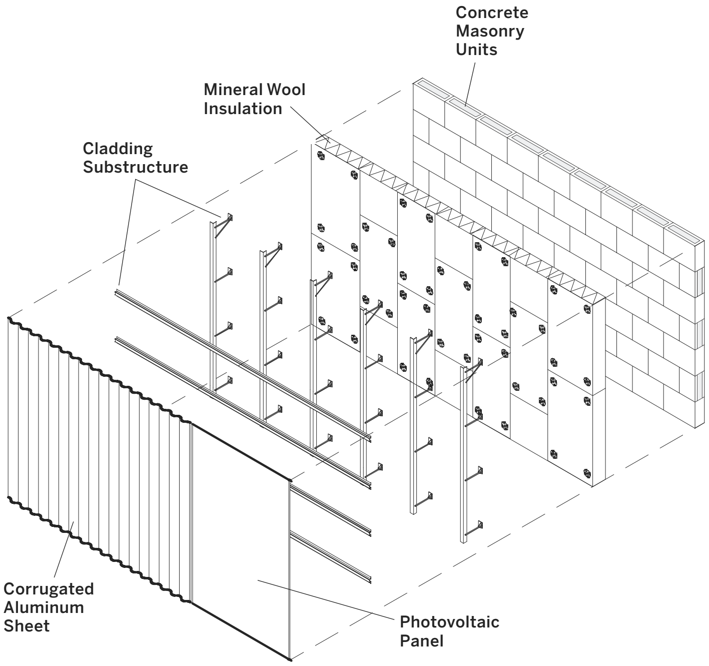
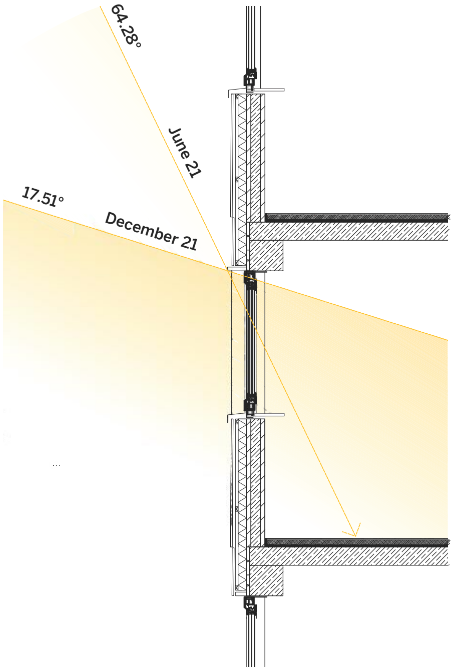
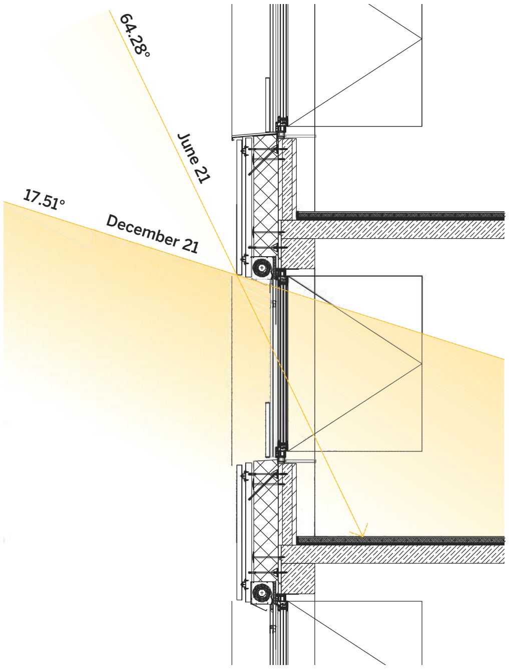
RENOVATION SCOPE AND ADDITION


Concrete
Masonry
Units
Mineral Wool
Insulation
Cladding
Substructure
Corrugated
Aluminum
Sheet
Photovoltaic
Panel

BUILDING-ENVELOPE AXONOMETRIC


64.28°
June 21
17.51°
December 21

EXISTING BUILDING SUN-EXPOSURE DIAGRAM


64.28°
June 21
17.51°
December 21

RENOVATION SUN-EXPOSURE DIAGRAM

Credits

ARCHITECTS: studiomolter — Philipp Lionel Molter, principal; David Gautrand and Emily Murphy, collaborators Stadtbau Regensburg — Thomas Brückl, project manager; Thomas Dirschedl, architect; Götz Kessler, managing director; Jonas Lang, project manager; Hans Teufl, architect

CONSTRUCTION MANAGER: Huber Architekten — Frederik Thomas, managing director; Thomas Reimann, architect

ENGINEERS: IB Augustin (structural); M+E Trieb Ingenienieurburo (m/e/p); iaoe: ingenieurburo (building analysis)

CONSULTANTS: Nemeth & Stopper (energy and life-cycle analysis); University of Applied Sciences Rosenheim (sustainability)

CLIENT: Stadtbau Regensburg

SIZE: 99,500 square feet

COST: $22 million

COMPLETION DATE: December 2023

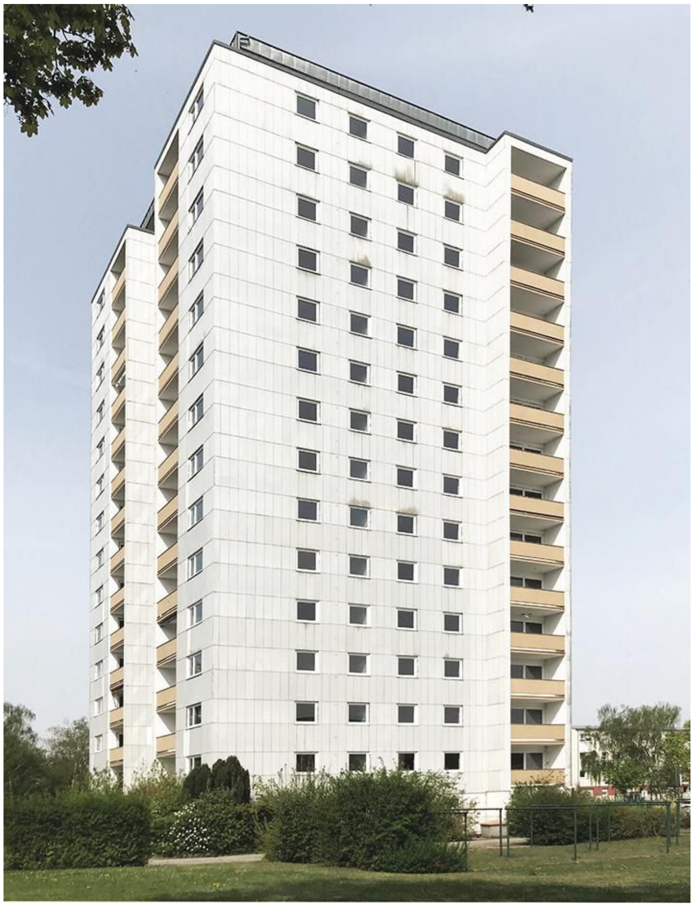
Sources

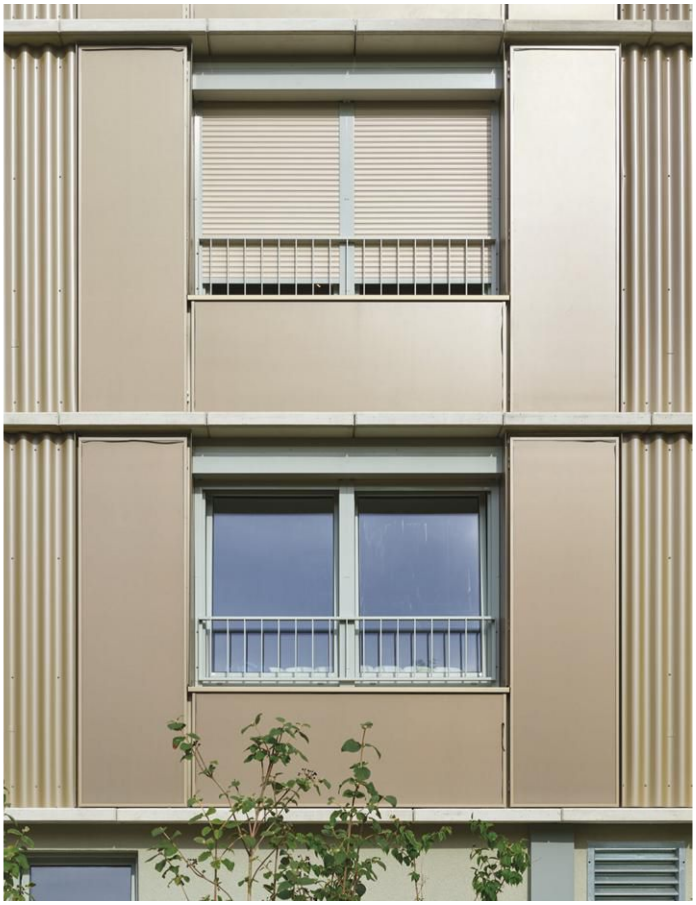
METAL PANELS: BEMO Systems

PRECAST CONCRETE: Baywa

CURTAIN WALL: HPM Fassadentechnik

PHOTOVOLTAIC PANELS: Sunovation





The tower was clad in white FRC panels, and had small window openings (above). Champagne-colored photovoltaics and aluminum sheets now enclose the building, and windows have been enlarged (above, right).

PHOTOGRAPHY: © PHILIPP MOLTER (LEFT)

explore other options for the building envelope, ones that could be easily dismantled and recycled, along with other sustainability upgrades, through a design competition.

In 2020, studiomolter was awarded the commission, and shortly thereafter began its investigation process, mainly to evaluate the structural capacity of the tower's concrete masonry units, located behind the exterior cladding. With those assessments in hand, the design team moved forward with detailing the new ventilated and thermally broken envelope system, which consists of nearly 8 inches of mineral wool insulation, an aluminum substructure, and thin sheets of corrugated-aluminum and PV panels in lieu of FRC. Together, the building envelope components are expected to last some 50 years, and the aluminum panels, owing to their ease of disassembly, can be removed and recycled for a range of uses. The design team was also required to add a concrete barrier at the exterior face of each floor plate to mitigate the fire risk associated with the envelope's air gap and the PV panels' electrical wiring.

Initially, PV panels were to be placed on the east, south, and west elevations, as well as the roof, for a system capable of producing well over 100 kWh during peak hours—enough to provide power to numerous buildings within the neighborhood. But such a high output would have led to the developer's official classification by the German government as an energy supplier, which comes with a host of additional regulations and tax levies. So, instead, plans for the east elevation were scrapped to ensure a maximum peak production of (just) 98kWh.

"We also explored installing solar panels throughout the neighborhood, which is made up predominantly of four-story flat-roof residential buildings, but this proved too ambitious for the project," says Philipp Molter, founder of studiomolter. "We are still very proud of providing an affordable and self-sufficient energy source to social housing residents."

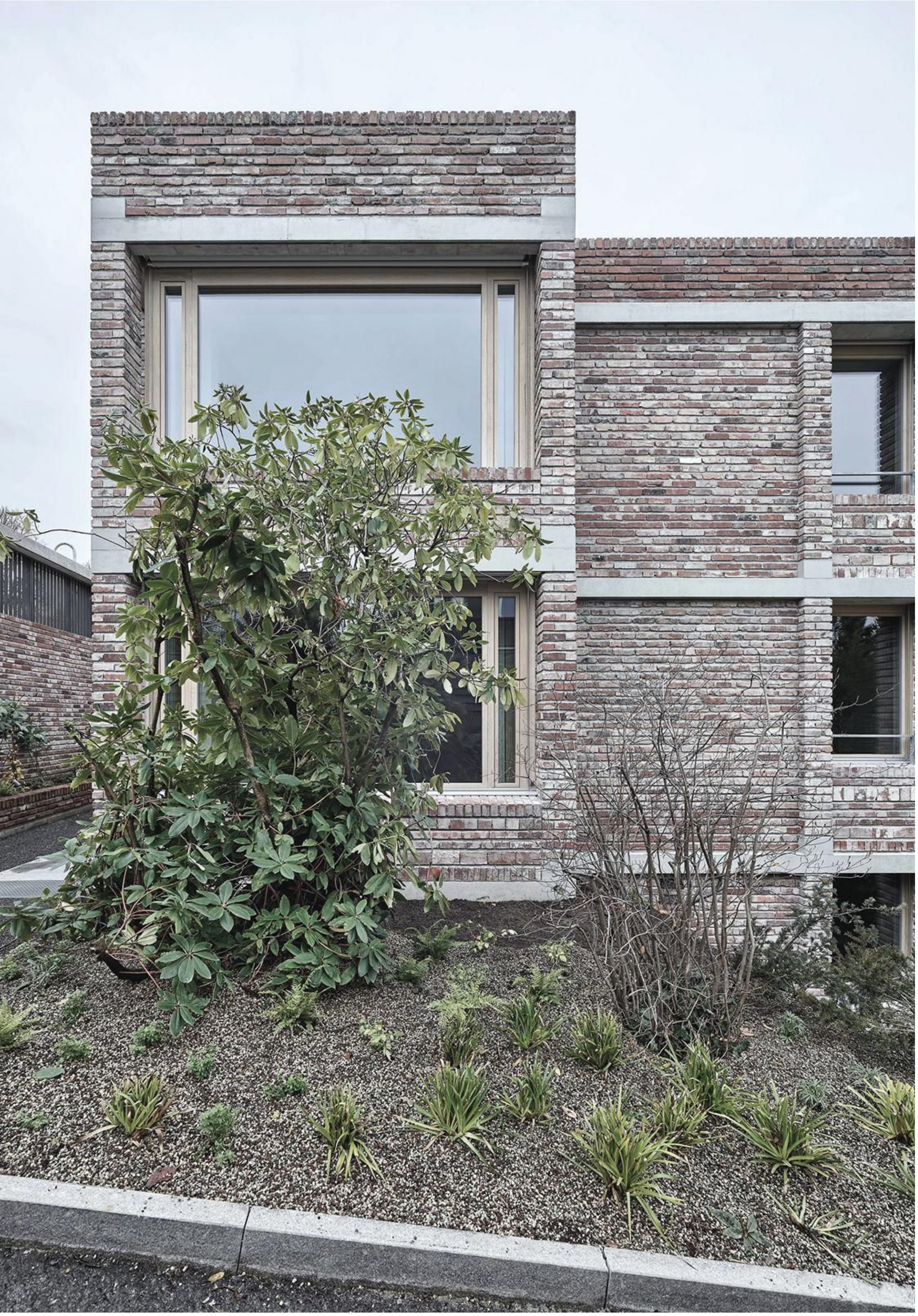
The shift in course for the cladding led to protracting the beginning of demolition until spring 2021. As the existing building's interiors were stripped and the cladding carted to a landfill, the adjoining tower was erected at a pace of one floor per week. The new high-performance windows, for which openings had been enlarged to allow more daylight penetration within the old building, were installed in the summer of 2021. With the building watertight, interior upgrades could then commence, which included installation of radiant-floor heating systems. The mineral wool insulation was in place by fall 2022, and the rest of the envelope system was completed the following year. Along the way, owing to the 2022 Russian invasion of Ukraine and the subsequent energy crisis, the developer decided to swap out the building's gas-fired cogeneration system and went fully electric for both its heating and appliances.

The multiple interventions—the total project cost was just shy of $22 million—has yielded impressive results. The estimated energy use intensity (EUI) of the original building was approximately 18 kWh per square foot annually. Today, the entire structure, with its additional 40 units, has an EUI of just 3, setting it up for another, greener half-century ahead. ■

Material Matters

Boltshauser Architekten combines reclaimed and earthen bricks at an apartment building near Zurich.

BY ANDREW AYERS



FOR ROGER Boltshauser, founder of Zurich-based Boltshauser Architekten, the 2008 Rauch House in Schlins, Austria, changed the course of his career. Codesigned with Martin Rauch, a European pioneer in the revival of earth construction, it was built almost entirely from soil excavated on-site. Since then, Boltshauser has been progressively pushing client boundaries with respect to low-carbon building techniques, in particular earth construction. At Kilchberg, just outside Zurich, his firm recently turned the dial up a notch when it completed a small apartment building—seven rental units, ranging from a studio to two-bedrooms—that uses both recycled fired bricks and unbaked earth block.

With its hillside views over Lake Zurich and the old city beyond, Kilchberg is at the upper end of the Swiss residential market, attracting the kind of wealthy occupants who drive Ferraris and Porsches. Fearing that those with such a social profile might be put off by anything too radical, the client rejected Boltshauser's proposal for load-bearing earth and brick walls, instead preferring the standard Swiss solution of a concrete frame. "Faced with this situation, we aimed to minimize the frame and maximize the filling," explains the architect. Using a post-and-slab system he likens to Le Corbusier's 1914 Maison Dom-Ino proposal, Boltshauser designed a building that is reminiscent of another celebrated Corbu project, the 1955 Maisons Jaoul in Paris. Both Jaoul and Kilchberg display a similar combination of exposed structural concrete and tactile brickwork infill, but, where Le Corbusier changed bricklayer every few courses to achieve a roughed-up effect, Boltshauser used time-patinated 100-year-old clinker bricks. These were reclaimed from a demolished church in Cologne, Germany, 250 miles away, a distance "that's about the limit for sustainability," comments the architect. "We debated whether we should use these bricks, but decided to go ahead, to show that it can be done, because there's no brick-recycling industry in Switzerland." Since modern mortars make it impossible to separate bricks without breaking them, Boltshauser specified a weaker mix, so the clinkers can be recycled again when the time comes.

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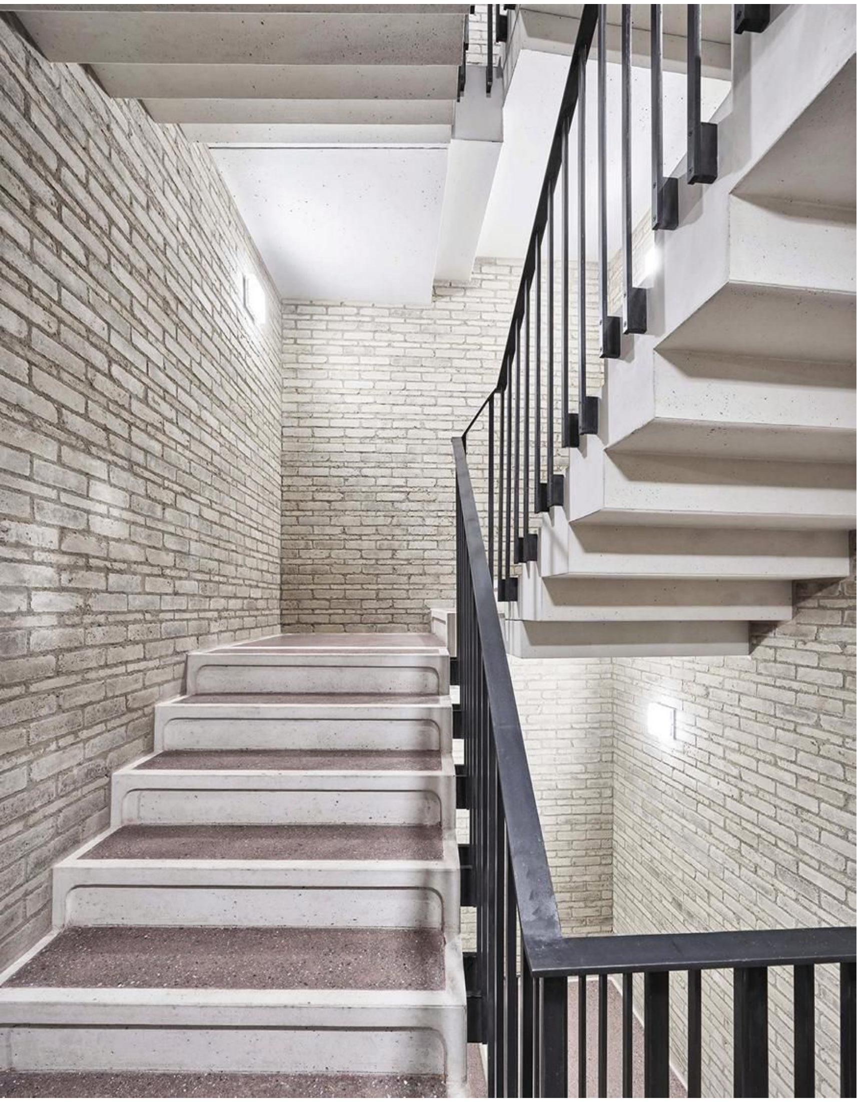
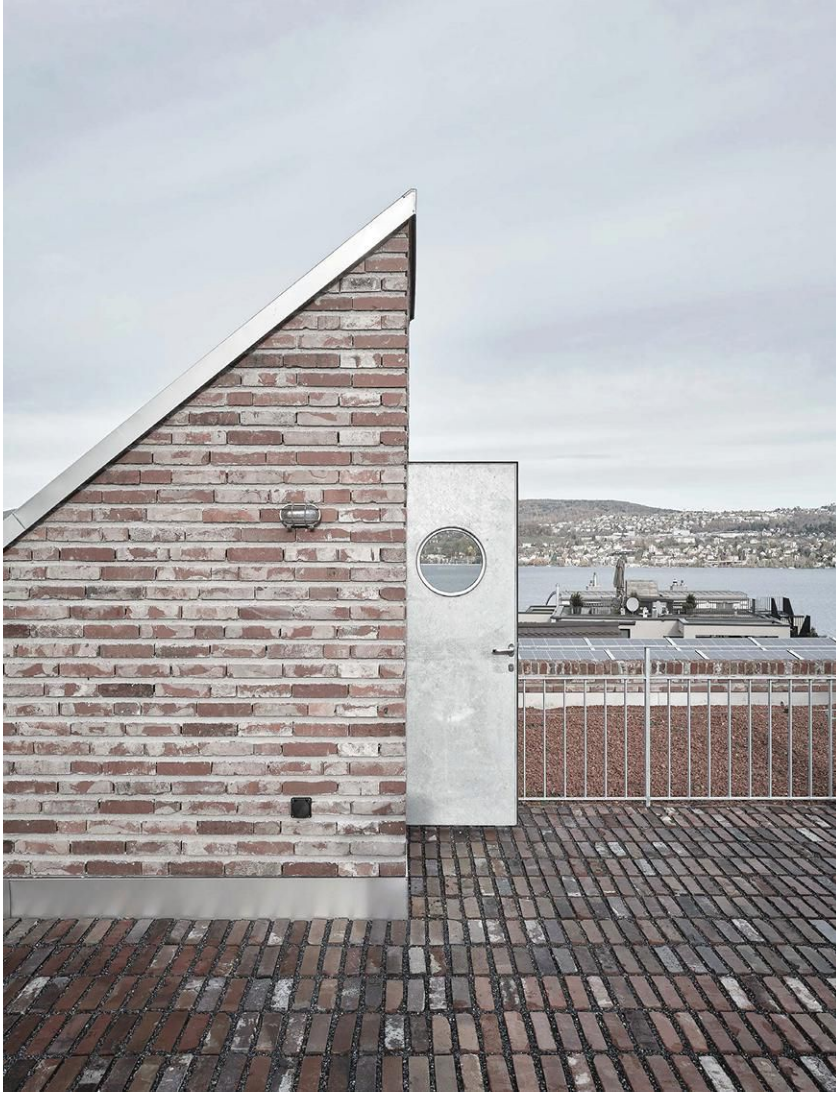




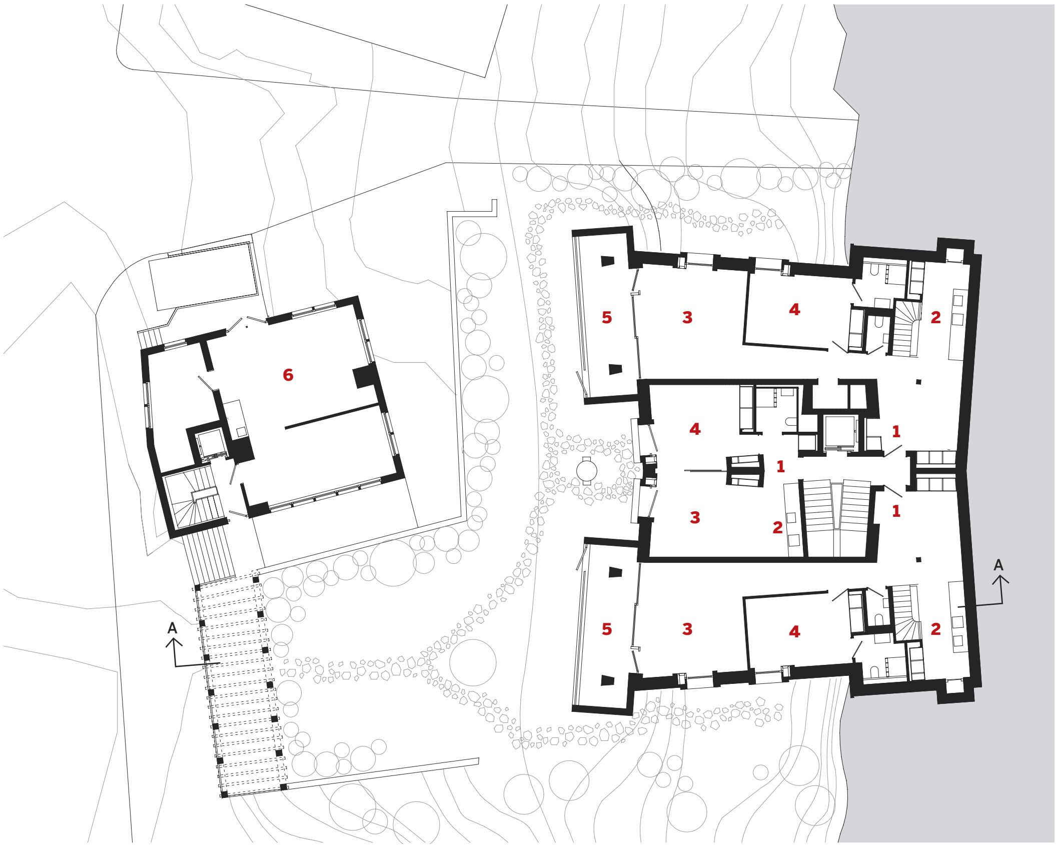
With views over Lake Zurich (above, right), the building uses reclaimed brick on the outside (opposite) and unfired earthen brick on the inside (above, left).

While the external vocabulary of the Kilchberg apartments may seem familiar, inside, in the context of speculative housing, they appear far more radical, since almost every surface has been left raw: concrete floors are subtly tinted red and polished to look like terrazzo; concrete bracing walls are exposed; and the earth-block inner surface of the external envelope (a classic cavity-wall system more than 20 inches deep and providing excellent thermal inertia) is also entirely bare.

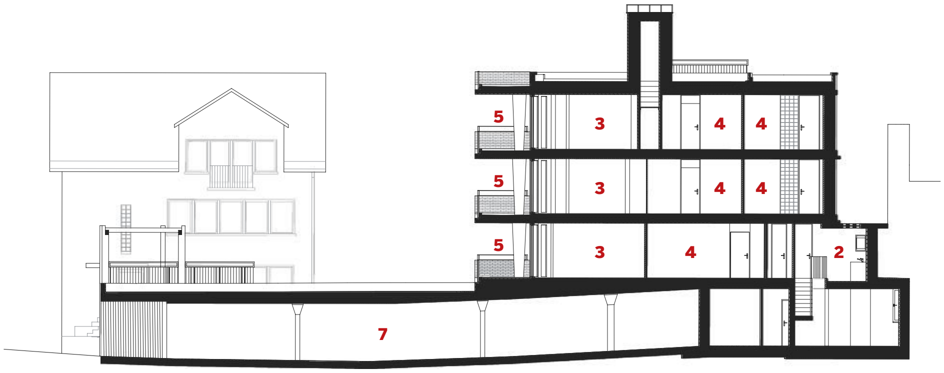
Molded by the Geneva firm Terrabloc from soil dug out to build the foundations, the unbaked blocks also served for construction of internal partitions. Where loads are light, they are made from pure earth, but when subjected to greater compression, the blocks are stabilized by the addition of 4 to 5 percent cement. To ensure they can breathe, they must not be painted or plastered, a condition that had far-reaching design implications: not only did the architects have to draw the placement of every block in advance, they also had to detail services from the outset, with wiring run through metal tubes and plumbing restricted to specific areas. Earth is also present in the mortar used to mount the blocks and in the off-white plaster covering the concrete ceilings, specified to make the rooms more luminous and to contrast with the dark beige of the pressed blocks.

In his bid for sustainability, Boltshauser keeps things low-tech when possible, so he eschewed mechanical ventilation at Kilchberg, except in the basement parking garage. Heating, as one would expect, is geothermal, while solar panels cleverly double as sun shades on the top-floor balconies. Since unconventional building methods cost a little more, the onus was on the architects to make the plan as efficient as possible to squeeze in extra rental space. Moreover, Boltshauser's experiments in an architecture of expressed materials and tectonics create a strong aesthetic that might not be to everyone's taste (to hang pictures on their mud-brick walls, residents may only drill holes into the mortar). Nonetheless, despite the client's fears, all the Kilchberg apartments found occupants within two months. "The tenants really like the look of them," comments Boltshauser. "I think they see it as an alternative way of living."

Although the Kilchberg building marks a huge advance from the early days, when "clients wanted none of our environmental



FIRST-FLOOR PLAN



SECTION A - A

1 FOYER
2 KITCHEN
3 LIVING
4 BEDROOM
5 TERRACE
6 EXISTING RESIDENTIAL BUILDING
7 PARKING

The concrete frame is expressed on the exterior (opposite, bottom right). The interior's earthen bricks (above) are left bare. The floors, in polished concrete, have a subtle red tint (opposite, top and bottom left).

ideas, however hard we pushed," Boltshauser still feels it is a compromise. The next challenge, he says, is to move beyond Kilchberg's artisanal scope to demonstrate that much larger buildings can be constructed using alternative methods. Only then, he believes, might we usher in a paradigm shift at an industry-wide scale. ■

Credits

ARCHITECT: Boltshauser Architekten — Noémie Allenbach, Mike Azzaoui, Markus Boltshauser, Roger Boltshauser, Nastja Caretta, Marle Freitag, Johannes Koller, Fabio Tammaro, Hiroki Tanigaki, Marco Zingg, project team

CONSULTANTS: Fanzun (structural, fire); Maurus Schifferli Landschaftsarchitekt (landscape); Balzer Ingenieure (building services); IBG Engineering (electrical); Lemon Consult (building physics, sustainability); Feroplan (facade); Reflexion (lighting)

CLIENT: IMBO Immobilien

SIZE: 7,000 square feet

COST: $8.8 million

COMPLETION DATE: April 2022

Sources

RECLAIMED BRICKS: Backstein-Kontor, Anliker

COMPRESSED-EARTH MASONRY: Lehmag, Bernserbau

WINDOWS: Fenster Keller

GLASS BLOCK: Semadeni Glasbeton

ENTRANCES: Holzbearbeitung

WOOD DOORS: RWD Schlatter

WOOD FLOORS: Oberhänsli

CONCRETE FLOORS: Tachermann Unterlagsböden

LIGHTING: Inventron, Alpnach

PHOTOGRAPHY: © SANDRO LIVIO STRAUBE

Midcentury Makeover

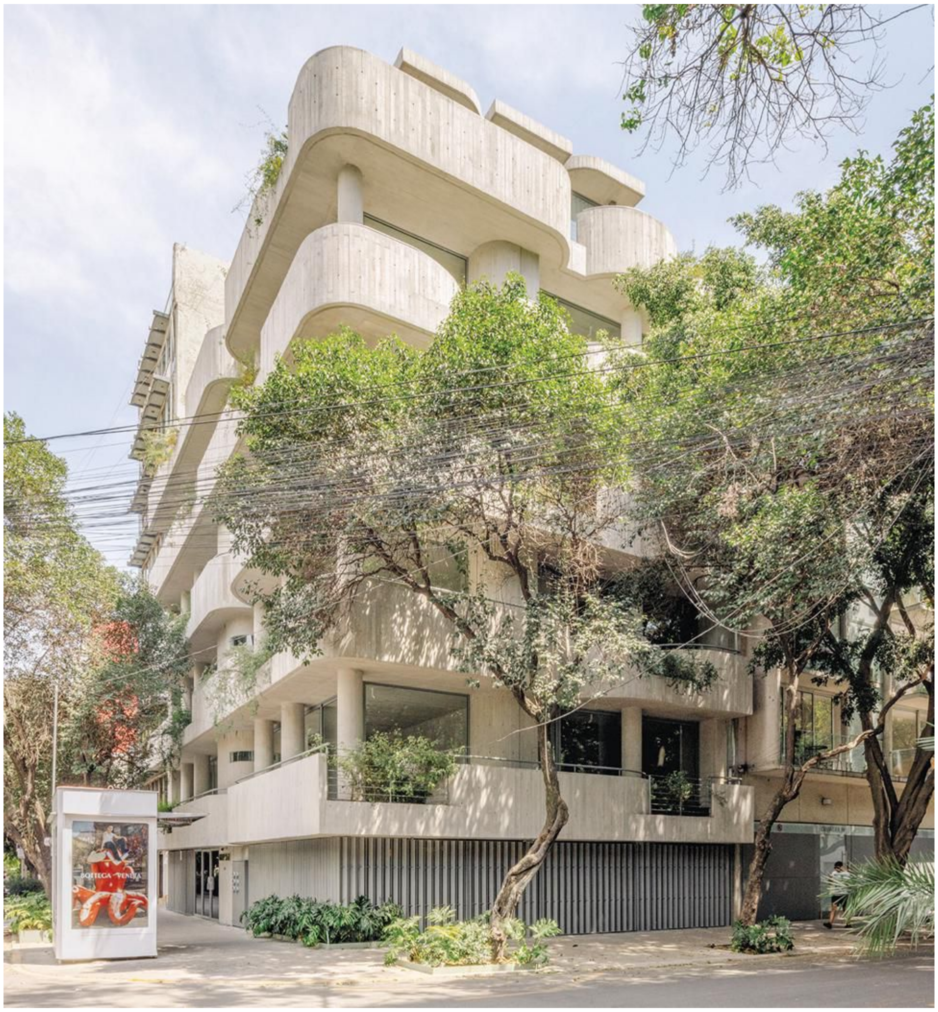
In Mexico City, Michan Architecture sculpturally transforms a functionalist 1950s apartment block.

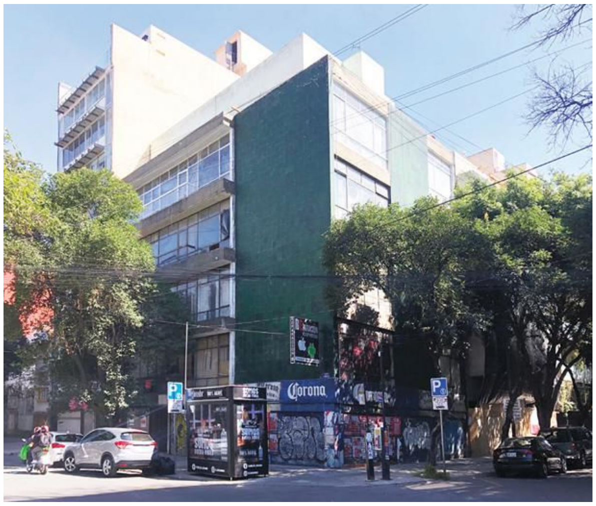
BY MICHAEL SNYDER

IN 2021, the Mexico City–based architect Isaac Michan received a commission to radically transform a functionalist apartment block in the well-heeled neighborhood of La Condesa. The building had been uninhabited since the 2017 earthquake that severely damaged more than 12,000 structures in the Mexican capital and destroyed 38 others. The five-story building, on a leafy corner in one of the city's most desirable neighborhoods, showed no external cracks or fissures, but its foundations had settled unevenly after the disaster and its slender columns, designed to diminish in diameter with each successive level, turned out to be insufficient to bear the upper floors' weight, according to prominent local engineering firm CTC Ingenieros Civiles. And, while the city's heritage laws did not formally protect the original 1953 building, the client, a developer, had no interest in demolishing it. Michan, a Mexico City native and 2019 Design Vanguard, who opened his firm Michan Architecture immediately after completing his undergraduate architecture degree in 2010, had never worked on such an extensive revamp, but the exercise struck him as interesting. "The site is the project," he says. "You have to work with what you see and what you find."

Michan's first proposals conserved the look and feel of the facade, with its delicate, shallow balconies and interplay of floor-to-ceiling glazing with broad sweeps of green mosaic, all typical of the period. As iterations progressed, the architect proposed extending the balconies along the length of the elevation and adding a sculptural structure to the roof for an additional apartment. Then, as he and his team stripped away unsalvageable finishes, they discovered deep imprints of wooden formwork in the original columns, slabs, and inverted beams. "The process of designing and discovering the structure was almost simultaneous," Michan says. Rather than replicating the facade, he would extend the bones outward like an exoskeleton.

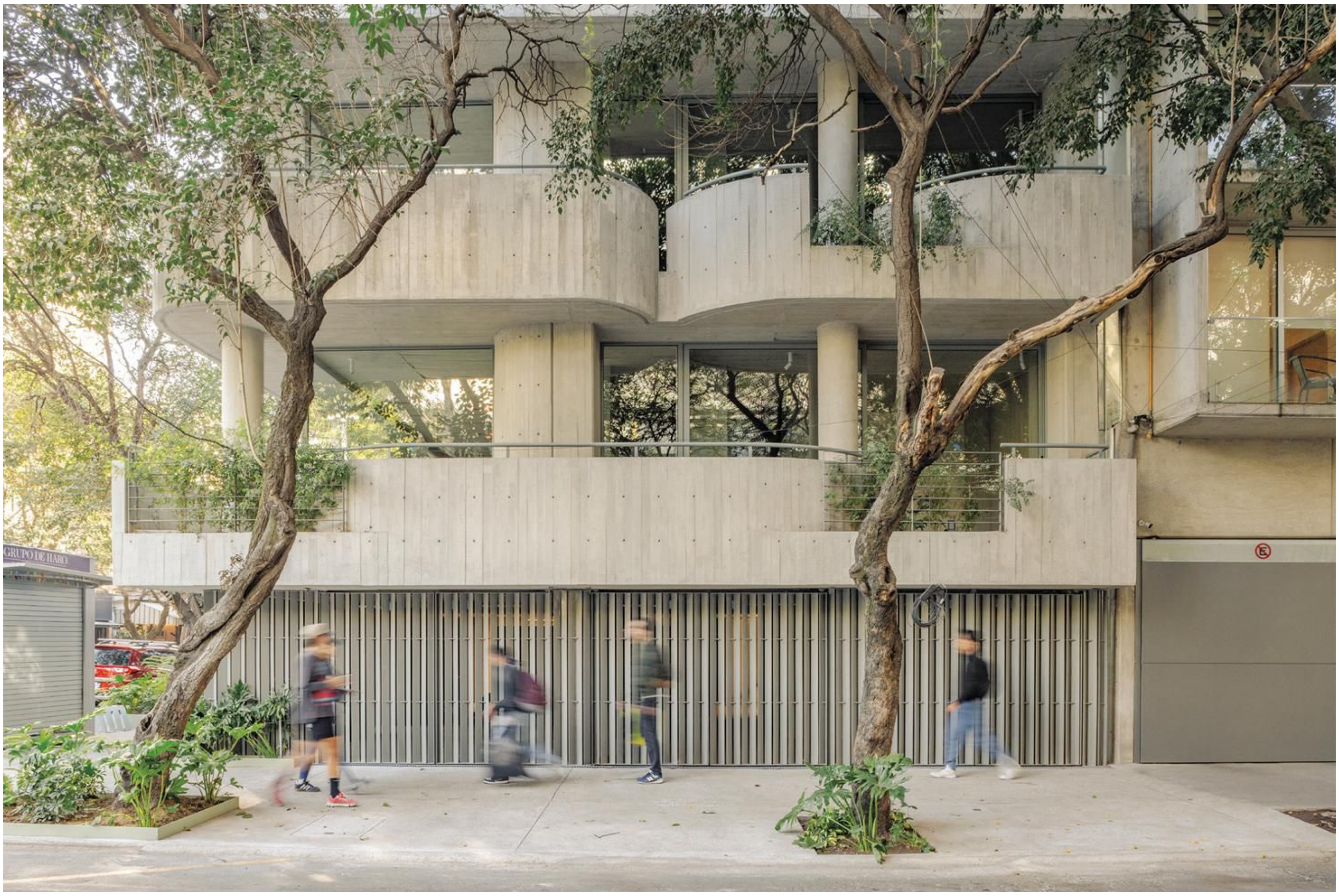
As CTC recalibrated the structure—a complex operation that involved weighting the foundations to tilt the building back into equilibrium—Michan settled on a new design that would move the floor-to-ceiling windows deeper into the floor plate and place the concrete columns, which Michan reinforced,





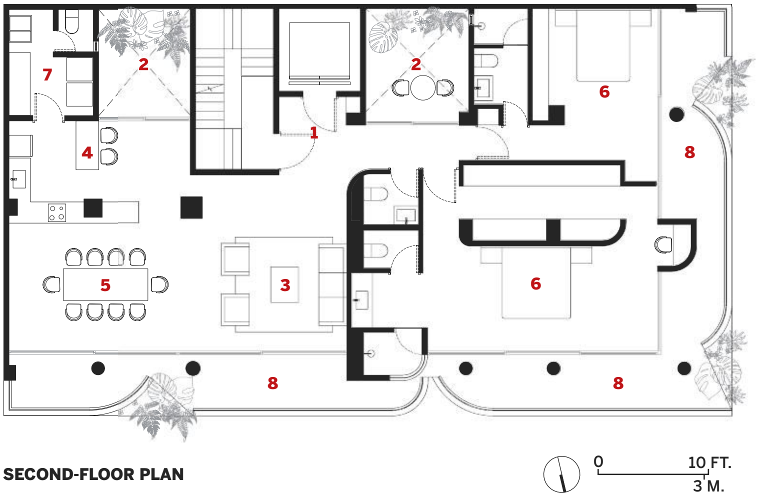
The original seven-decades-old structure (left), on a corner in La Condesa, has been revamped (above and opposite) to include expressive wraparound balconies.

PHOTOGRAPHY: © ARTURO ARRIETA, EXCEPT AS NOTED; COURTESY MICHAN ARCHITECTURE (BOTTOM)



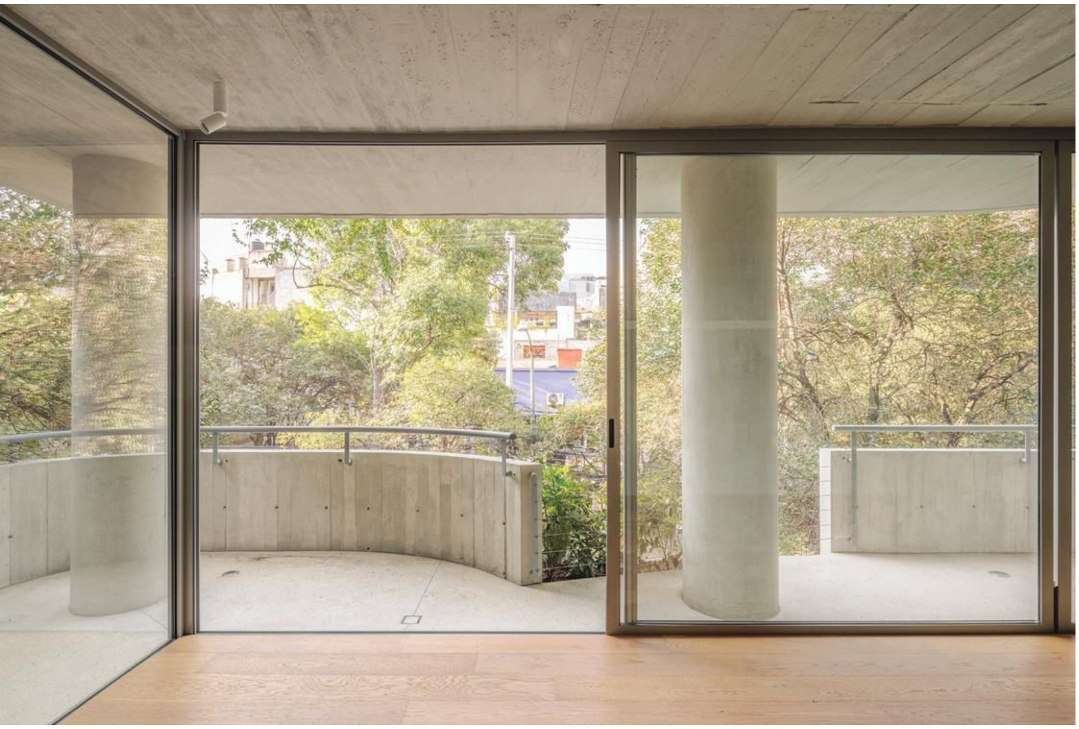
outside, on newly expansive wraparound balconies. Built from poured-in-place concrete to match the pattern of the original structure's formwork, those balconies would cut in at unexpected curves to syncopate the orthogonal rhythm of the raw, expressive facade while opening spaces for planters embedded in the hollows of the inverted beam structure.

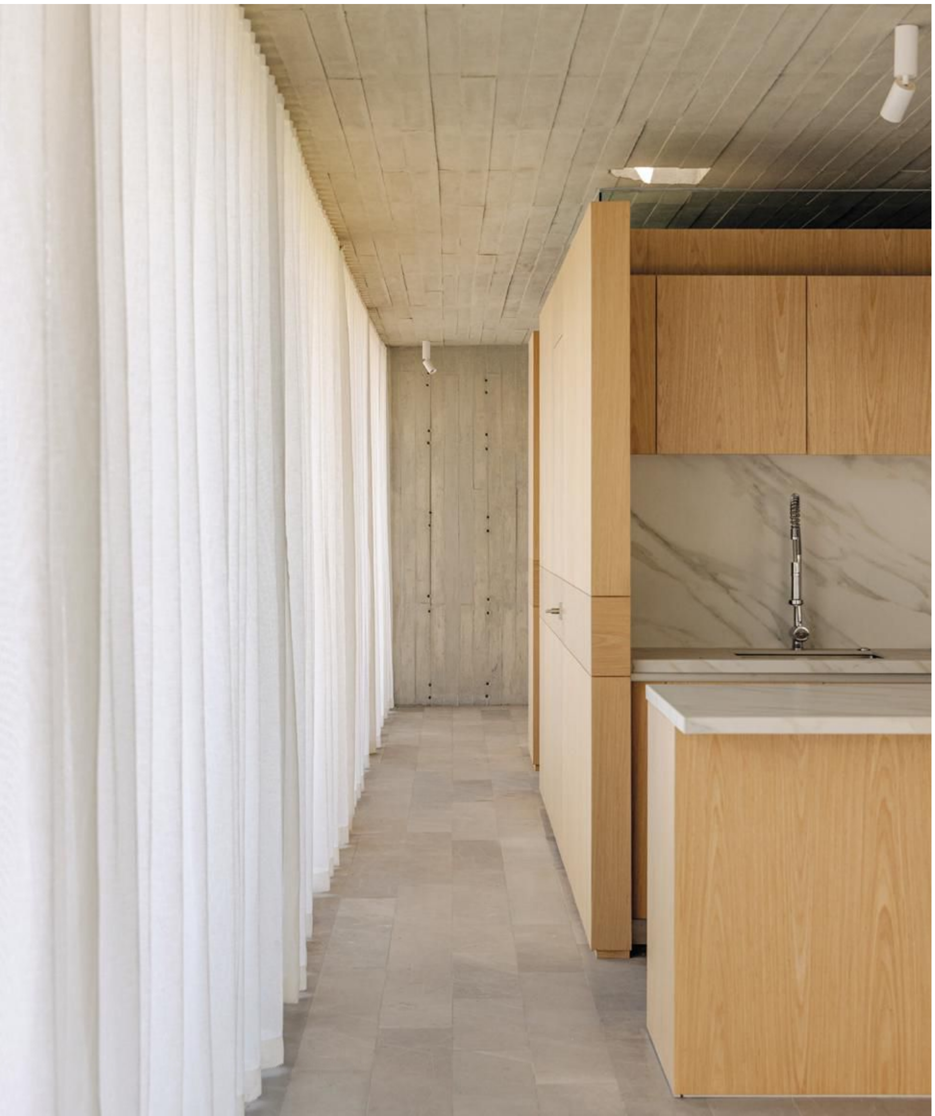
Michan retained the building's footprint while dramatically reshaping the layouts of the 1,700-square-foot apartments, one per floor (save the ground floor, used for parking and a small lobby). Originally broken into three bedrooms with enclosed kitchens, bathrooms, and services, the apartments, though generous, "were much more compartmentalized," Michan says. With the original walls removed, Michan and Alexandra Bové, a partner in the firm focused on interiors, added a sequence of concrete "capsules" to enclose bathrooms, closets, and bedrooms. On the roof, Michan added a penthouse with a smaller footprint and a large, open terrace, incorporating a setback to respect the build-



SECOND-FLOOR PLAN

1 FOYER
2 LIGHTWELL
3 LIVING
4 KITCHEN
5 DINING
6 BEDROOM
7 LAUNDRY
8 TERRACE





The formwork pattern of the new balconies (top) matches that of the original concrete now exposed within the apartments (bottom).

ing's relationship to the street.

Compared to its lightweight, functionalist predecessor, the overhauled structure seems solid and robust, a sturdy and muscular presence ringed by ficus trees. It draws no attention to its prior incarnation, does not aim to sell itself as a "sustainable" project, even as countless new-builds use superficial green walls as an eco-friendly marketing ploy. Instead, it demonstrates the creative possibilities of working within pre-existing conditions of material and scale.

The building also neatly encapsulates Michan's own changing interests. Since returning home in 2013 after a masters in architecture at Pratt Institute in New York, his work has gone from a more exuberant experimentation with form, distant from Mexico's deeply ingrained Modernist tradition, to more visually restrained but technically complex experiments with materiality itself. In a context as rich with craftspeople and artisanal traditions as Mexico, that requires openness to the unexpected, whether in the final tactile surface of a board-formed concrete wall or transformations in a building's overall design. "I like the idea of letting the project move," Michan says. "Not compromising but finding the right solution to get you where you want to go." ■

Michael Snyder is a Mexico City–based freelance reporter on architecture, food, and travel, and a contributing editor at T: The New York Times Style Magazine.

Credits

ARCHITECT: Michan Architecture — Isaac Michan Daniel, Alexandra Bové, principals; Fernando Gomez, Fernando Alamilla, Benjamin Caballero, Pilar Colado, design team

CONSULTANTS: CTC Ingenieros Civiles (structural), Bosch Ingeniería eléctrica (m/e/p/fp), Ideas en Luz (lighting)

GENERAL CONTRACTOR/CLIENT: EAH

SIZE: 12,800 square feet

COST: withheld

COMPLETION DATE: April 2024

Sources

CONCRETE: Cemex

ROOFING: PASA

WINDOWS: Cuprum

GLAZING: Crisvisa

LIGHTING: Illux

LIGHTING CONTROLS: Lutron

ELEVATORS: Mitsubishi

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Houses with One Pillar

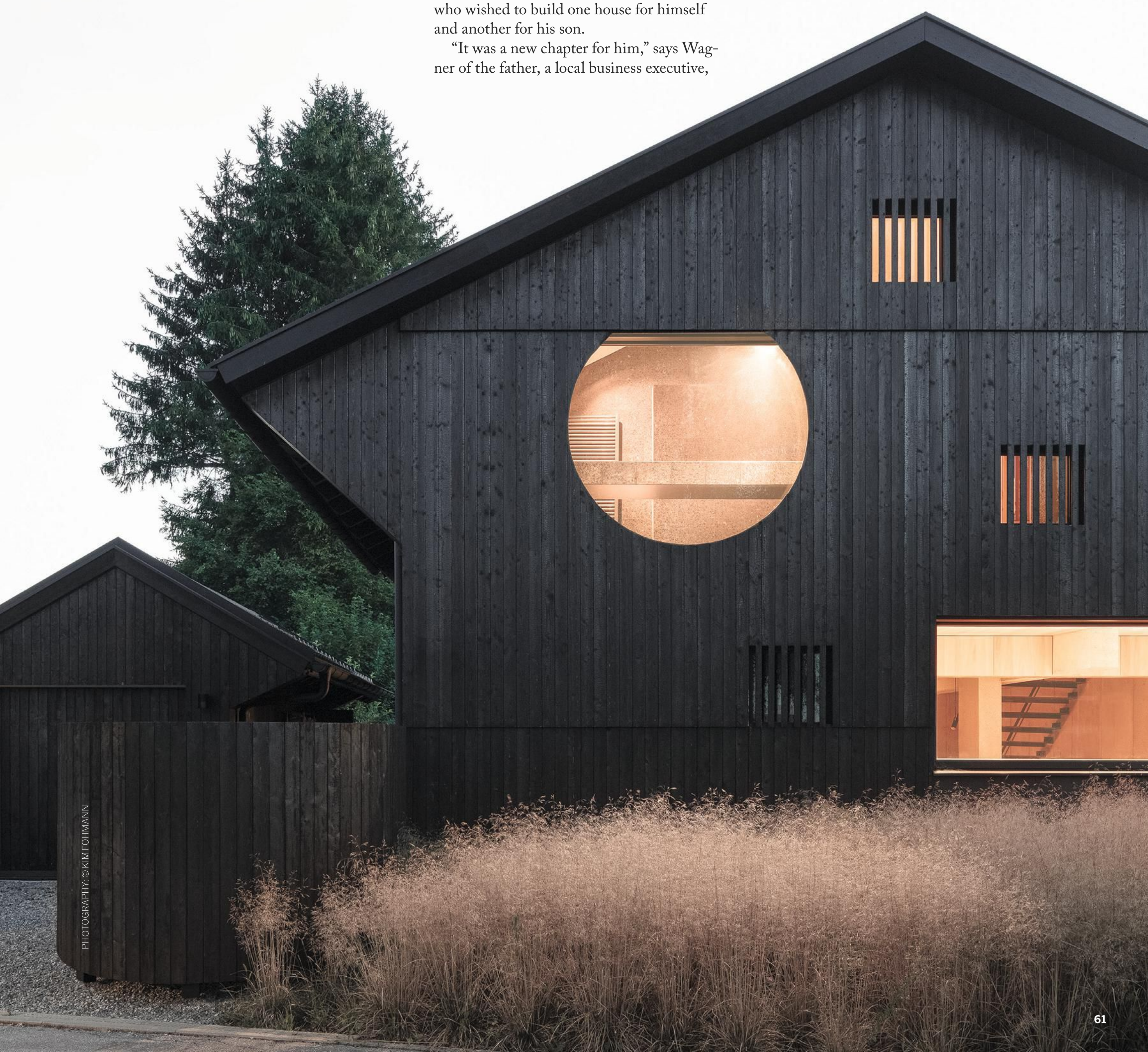
Söcking, Germany

Buero Wagner

DISTINGUISHED by its charred-wood facade and large circular windows, this striking project sits among houses hidden behind hedges on large lots, in a quiet residential area, a suburb of Munich, developed in the 1950s. Its dramatic face, however, isn't the only thing that sets it apart: it's actually two residences on one plot. That was the idea when architect Fabian Wagner, founder of Buero Wagner, was approached by a father who wished to build one house for himself and another for his son.

"It was a new chapter for him," says Wagner of the father, a local business executive, who had shared an apartment with his wife before she died. "He always wanted to become an architect; at one time in his life, he wanted to build his own house."

The nearly identical houses are located in Söcking, a village by Lake Starnberg, in the foothills of the Alps. Here, as in many of areas nearby, there has been a push for densification, as more and more residents move out



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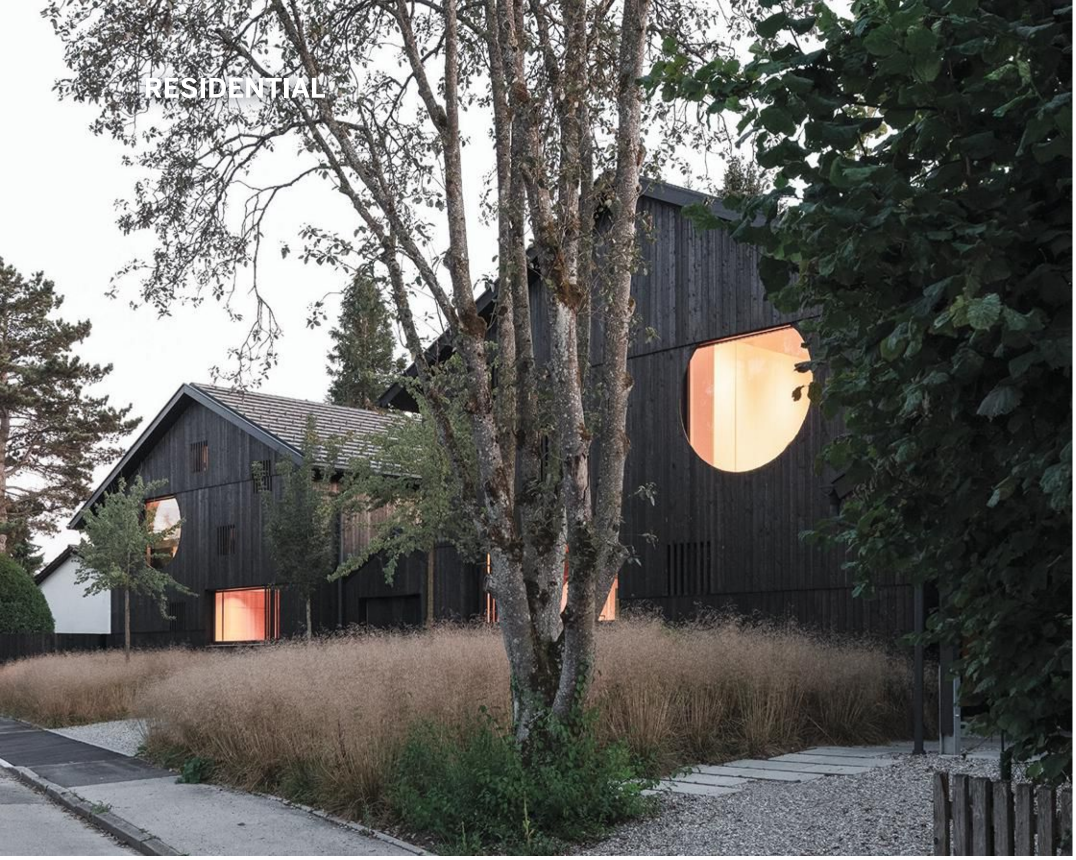
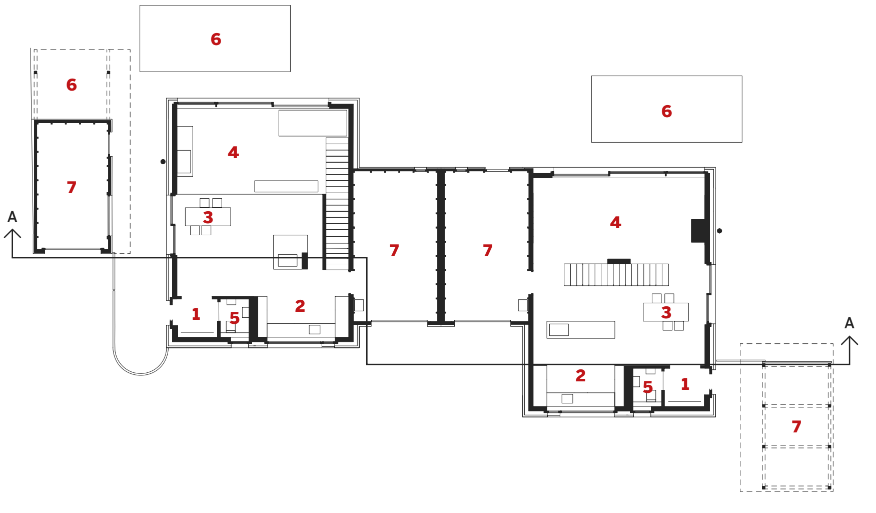
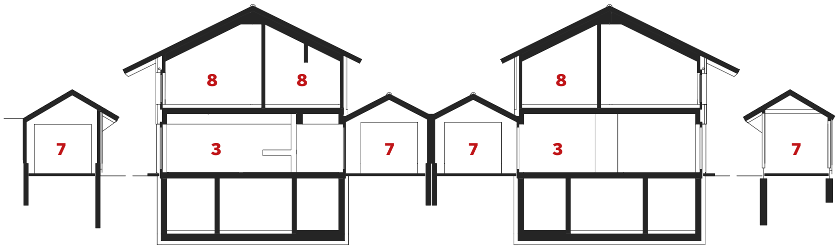




GROUND-FLOOR PLAN



SECTION A - A

1 ENTRY
2 KITCHEN
3 DINING
4 LIVING
5 POWDER ROOM
6 TERRACE
7 GARAGE
8 BEDROOM

of central Munich. “The area has quite large building plots,” says Wagner. “The local officials don’t want to create new plots that extend the borders of the villages, so they try to densify inside.”

Connected by two central garages, Houses with One Pillar replaces an existing 1950s residence built from the low-cost materials typical of the postwar period. That structure’s location at the center of the lot made it difficult to configure two houses there. With a slight offset between the two new structures creating a barely detectable zigzag in plan, the paired houses could be set back from the street, making way for a front yard of tall grasses with a connection to the neighborhood. This public face contrasts with a private garden at the rear of the site, reached by way of stepping stone paths between the houses and their respective outer garages, where large overhangs, a vernacular reference to the area’s agricultural buildings, nearly touch. “That’s kind of a transition space,” says Wagner. “You have dark wood, and then you go through a darker middle area, and then it opens to a flower garden.”

This public to private sequence is echoed inside. Organized differently to meet the needs of the various generations, including two grandchildren, both homes arrange private space, such as bedrooms and study areas, on the timber-framed upper floor, while the ground floor, with a concrete structure, is organized so the street-facing kitchen communicates with the neighborhood. The living area looks out to the rear garden through a generous window nearly filling the wall.

It’s here, on the houses’ ground floors, where their namesake pillars reside (there is one pillar per house). To make the relatively compact residences feel more spacious—each footprint is about 1,000 square feet—their kitchen, living, and dining areas were designed as one large, open room supported by a single column. In lieu of walls, changes in floor elevation and of beams supporting the slab above distinguish the zones. Left exposed, the structure—as well as the concrete kitchen counter integrated into the pillar of the father’s house—becomes part of the design.

“Everything has its place and has that place not only for structural reasons, but as a design element,” says Wagner. In the end, these two separate but connected dwellings offer both privacy and closeness. Father and son can live their own lives and still support one another—like the pillars that support their homes. ■ *Joann Plockova*

Credits

ARCHITECT: Buero Wagner — Fabian A. Wagner, Edwin Hoffman, Louise Daussy, David Lachermeier, project team

ENGINEERS: Ingenieurbüro für Baustatik und Konstruktion Karl Wagner (structural); Elektro Stürzer (electrical); Gipser Haustechnik (heating and plumbing)

CONSULTANTS: E2WO (energy); Landschaftsarchitektur Meyer-Fey (landscape)

CLIENT: withheld

SIZE: 7,100 square feet

COST: withheld

COMPLETION DATE: January 2025

Sources

WOOD CLADDING: Mocopinus

INSULATION: Steico

CONCRETE: Rogorsch + Strobl Bauunternehmung

TIMBER FRAME: Loy Holzbau

WINDOWS AND DOORS: Josko

SKYLIGHTS: Velux

WOOD FLOORS: Trapa

CABINETS: Abler

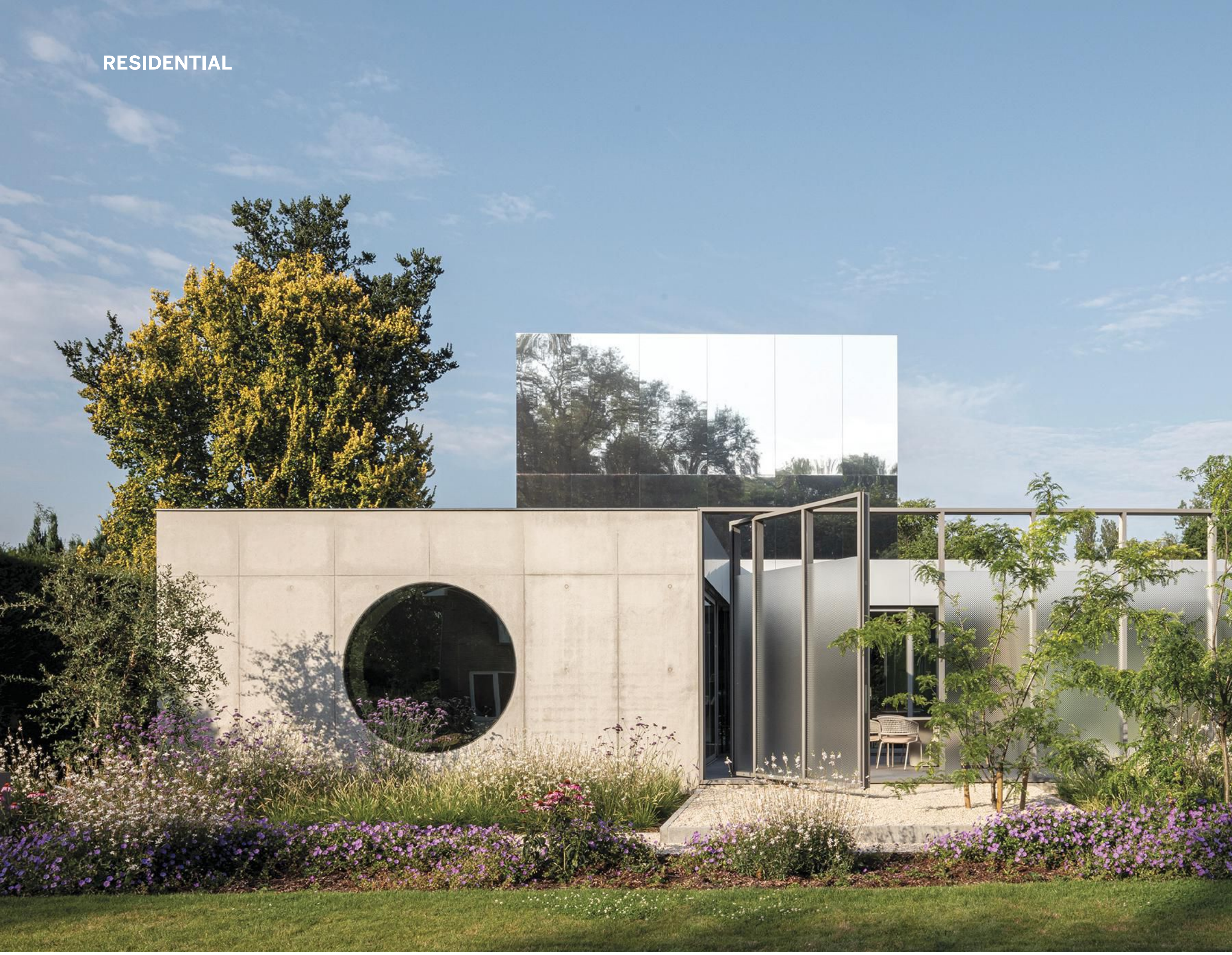
LIGHTING: Betonlicht, Delatlight, Nordlux

LIGHTING CONTROLS: Gira

PHOTOVOLTAIC SYSTEM: JinkoSolar

HEAT PUMP: Viessmann

RATHER than being hidden behind hedges, the paired houses have an open front yard of tall grasses (opposite). The ceiling structure and elevation changes help define ground-floor spaces (left and above).



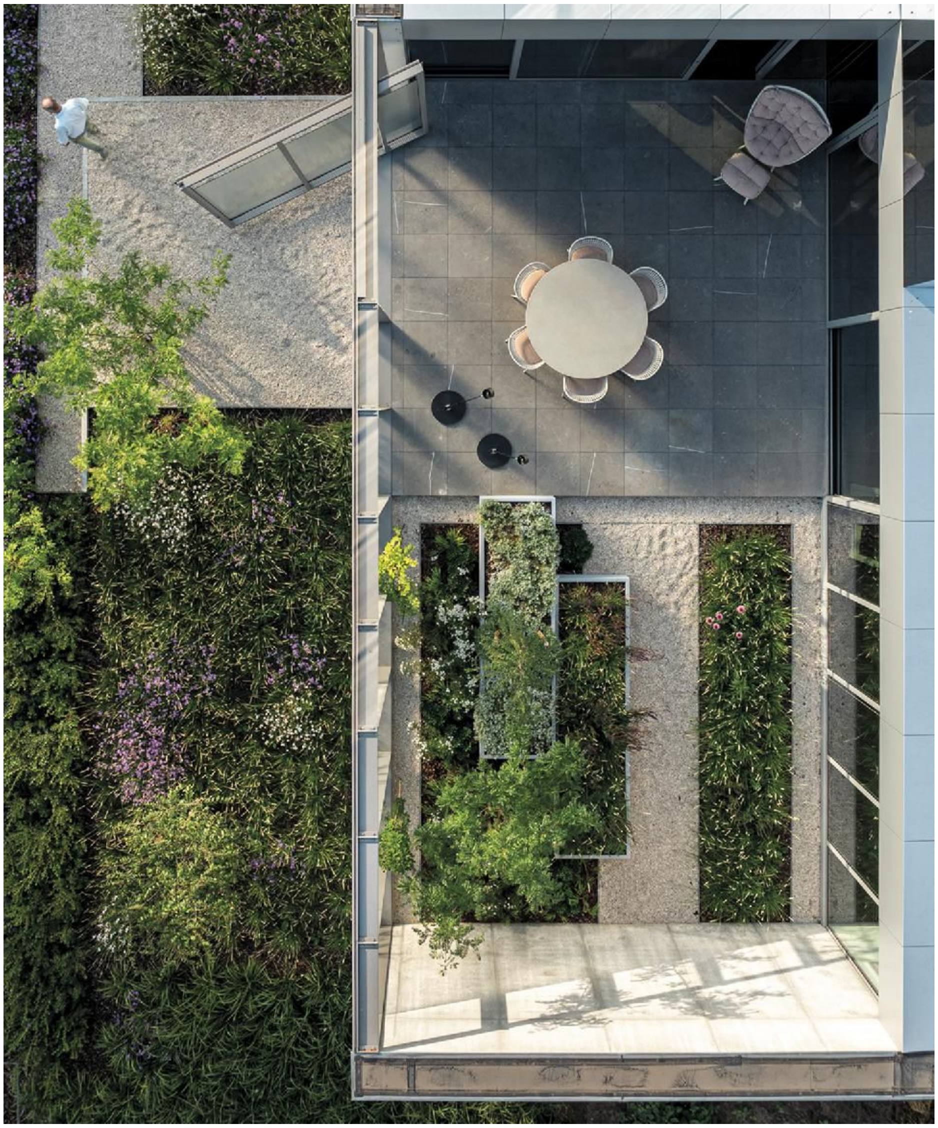
House S-D

Mol, Belgium | Dhoore Vanweert Architecten

IN MOST countries, the idea of hiring an architect to design one's home occurs only to design aficionados or the very wealthy. In the Flemish-speaking part of Belgium, however, there is a culture of ordinary people asking design professionals to build them houses. The couple Georges and Roza of Mol, about 12 miles from the Dutch border, are one example.

On the cusp of retirement, the two decided they should live nearer the town center in single-level accommodation so that "whatever happened, we could stay in our home as long as possible." A first step was buying a dilapidated 1960s property on exactly the right plot, with the intention of replacing it. Serendipity then found them their architect. Cycling one morning in nearby Aarschot, Georges saw a house that intrigued him; that afternoon, he and Roza knocked on the door to ask who built it and soon found themselves engaged in detailed design discussions with Jan Vanweert of Dhoore Vanweert Architecten.

As well as practical accommodation, an open layout, and lots of daylight, the couple "asked for a house that would stand out," recalls Vanweert, who, with his partner, Wim Dhoore, has made a specialty of private residences. Located in a typical postwar suburban street—lots of brick and pitched roofs—Georges's and Roza's house does indeed draw attention to itself, thanks to its strict orthogonal lines and sensual surfaces: raw concrete, translucent textured glass, and mirror-polished aluminum. Moreover, it is mystifyingly mute on its street front, with no apparent door and just one window, large and circular, whose darkened glass prevents passersby from seeing

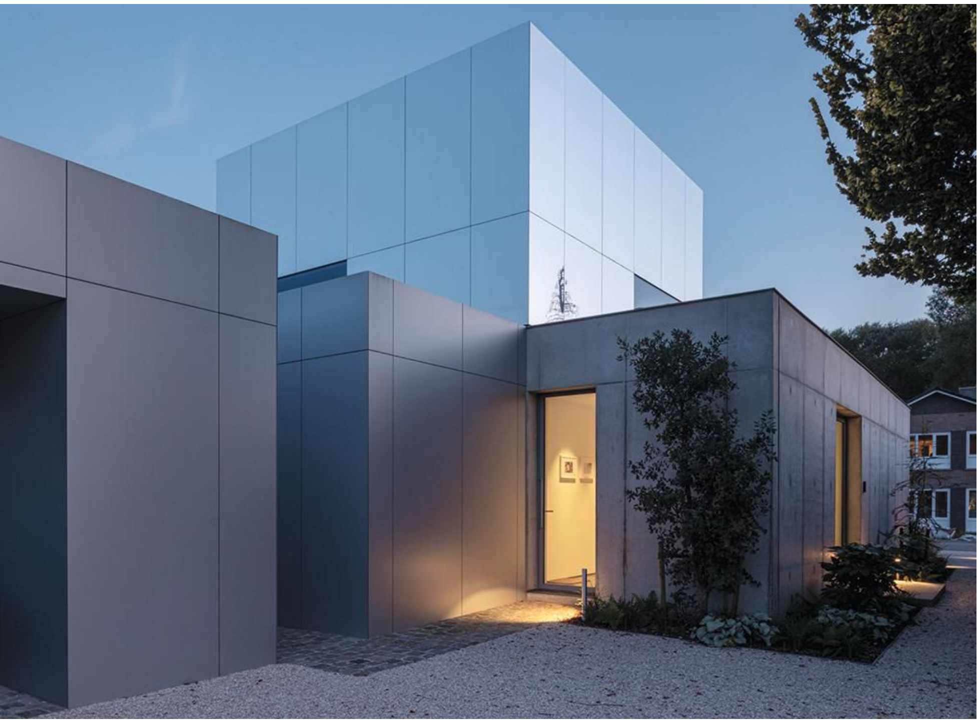


A PATIO is located at the southwest corner of the home (above). The outdoor space can function as an extension of the living room and kitchen (above, right and right)

in. It is only once through the main entrance, located on a side elevation, that the logic of its plan unfolds.

One of Vanweert's first choices was to place the main garden at the front of the house, rather than the back, to take advantage of the street elevation's southwesterly orientation—this is what is concealed behind the panels of textured glass. In addition, he set himself three constraints to help generate the design: minimizing internal load-bearing walls to ensure future flexibility; fitting the entire house, including the main outdoor spaces, into an approximately 62-foot square; and dividing the interior according to a nearly

PHOTOGRAPHY: © TIM VAN DE VELDE



MIRROR-POLISHED aluminum cladding reflects surroundings (left). The kitchen and living spaces have open layouts (opposite, top and bottom).

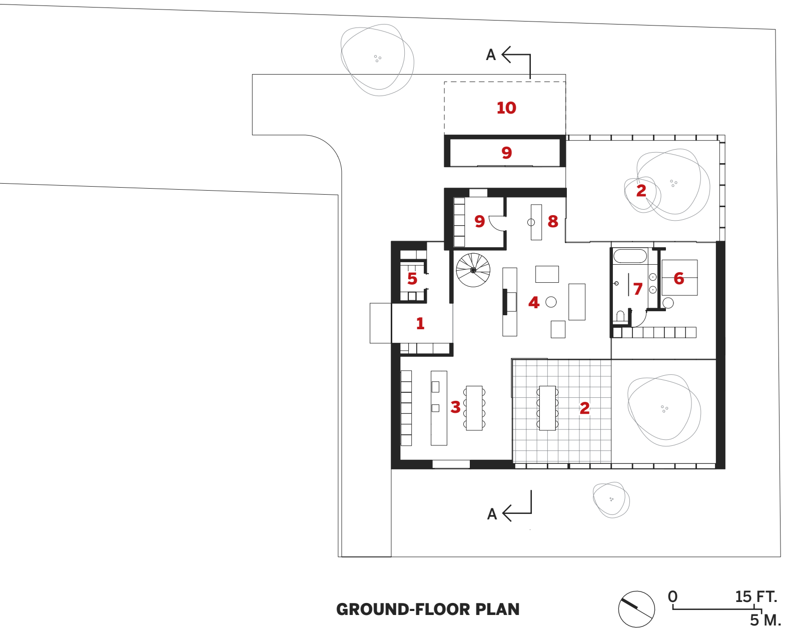
4-foot grid. The tension between the square and the grid led to all sorts of interesting manipulations, which can be observed in the facades, while the deceptively simple plan shifts and slides just as cunningly.

The entrance hall, with its built-in coat closets, guest bathroom, and passage to the rear, follows an old-fashioned formality that is very Flemish—an alternative, and much more direct, way into the house is via the giant gate in the glass screen on the street. Separating the hall from the main living area, a pivoting metal door, whose huge round window echoes that on the street front, is left open in summer and closed for warmth in winter. Three different functions flow together in the main space—a corridor leading to the stair, a kitchen/dining room, and the living room—with floor-to-ceiling sliding glass that allows it to become one with the garden. A precious source of daylight in winter, the latter, with its generous patio, becomes a much appreciated living area in summer. Meanwhile, the circular kitchen window establishes a visual connection with the outside world.

Accessed by a pivoting metal door fitted with a half-circle of glass, the couple's bedroom and bathroom also front the main garden, while at the rear they give onto a smaller patio garden, as does the part of the main living area where Georges has his desk. The circle motif continues in the spiral stair, which descends into a generous cellar, and rises to a second level containing two guest bedrooms and a small bathroom. Added at Vanweert's suggestion to increase the resale value, the upstairs is perfect for the couple's two granddaughters. A final circle punctuates the summit in the form of the bathroom's skylight.

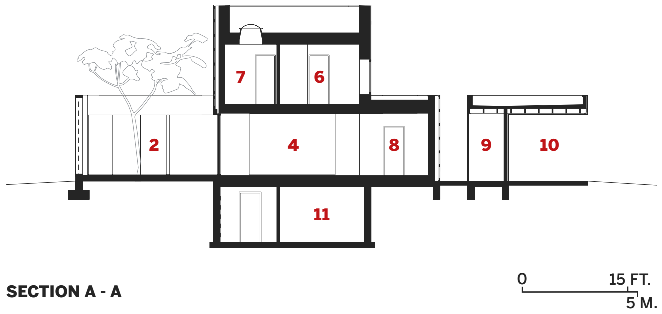
Structurally, the building consists of a concrete-slab roof that is mostly supported by the in situ cast-concrete panels (standard width, 4 feet) that form its perimeter walls. Inside, there are just three instances of load-bearing masonry. Despite its cloistered nature, the house feels very spacious, thanks both to the abundant light and the diagonal vistas that open up between the interior's parts.

The sophistication of Vanweert's plan is paralleled by the refinement of his finishes and fittings. Calibrated to the 4-foot module, 2-foot-square bluestone slabs cover the floor and flow out into the yard, while larger panels clad the bathroom and even serve to form Georges's desk. Concealing downpipes and load-bearing masonry, the olive-stained timber living room cabinetry finds its visual pendant in the book-matched green-quartzite kitchen island. Screening the couple's bed from the garden, a translucent Plexiglas closet adds a subtle splash of color, thanks to Roza's penchant for bright-hued clothing. Outside, the brushed-aluminum-clad bike shed carries the cantilevering carport roof, while the mirrored cube of the guest floor plays optical tricks straight out of Magritte.

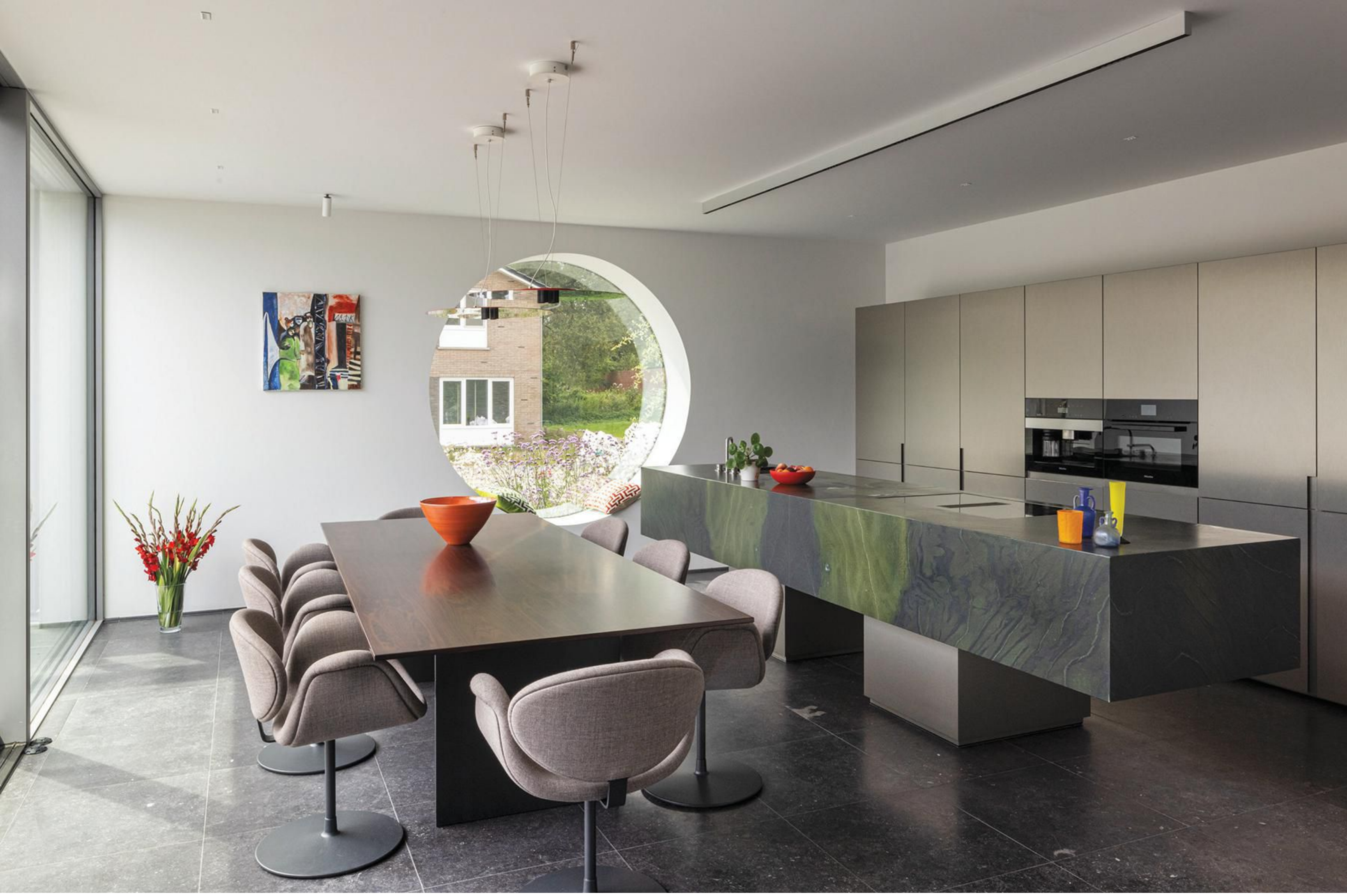


1	ENTRANCE
2	PATIO
3	KITCHEN
4	LIVING
5	POWDER ROOM
6	BEDROOM
7	BATHROOM
8	OFFICE
9	STORAGE
10	CARPORT
11	BASEMENT

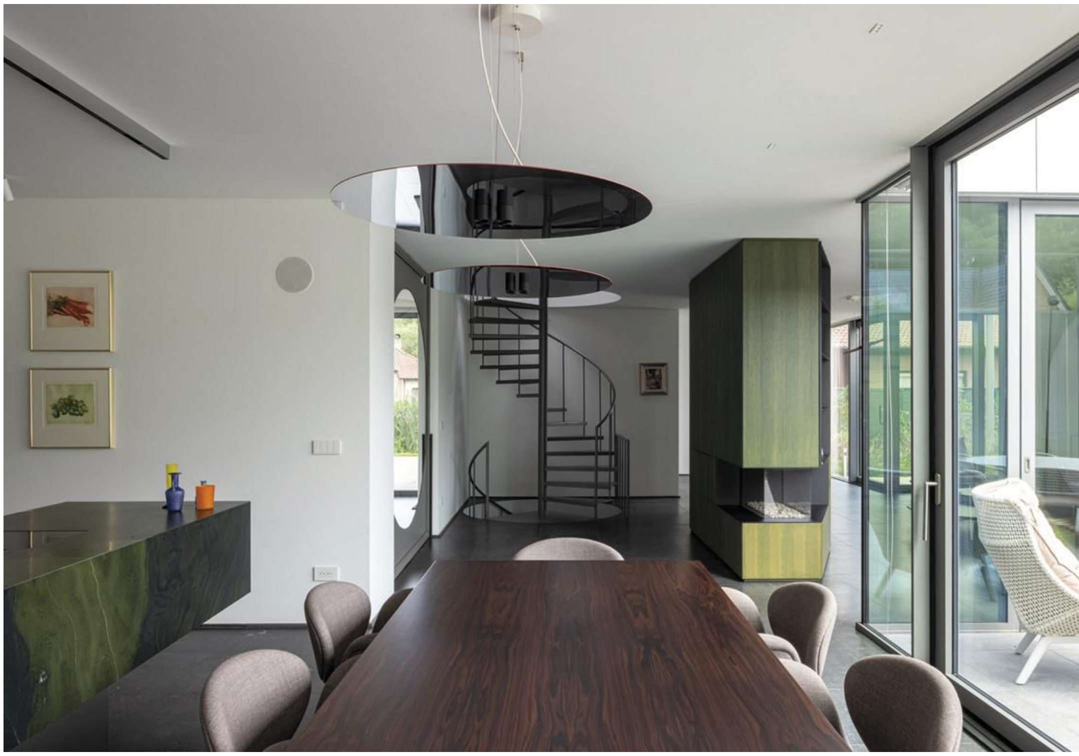
GROUND-FLOOR PLAN



SECTION A - A



Though Covid and the war in Ukraine stretched construction to five long years and doubled the price, Georges and Roza have absolutely no regrets. “I always wanted a glass house,” says Roza, “to see the seasons and have plentiful daylight in winter.” For Georges, “there’s such a sensation of space. We don’t need to travel as much anymore—we’re so happy at home.” ■ *Andrew Ayers*



Credits

ARCHITECT: Dhoore Vanweert Architecten — Jan Vanweert, Kristof Mariën

LANDSCAPE ARCHITECT: PUUR Groen

CONTRACTOR: Bouwwerken Verbraeken

CLIENT: withheld

SIZE: 2,560 square feet

COST: withheld

COMPLETION DATE: December 2022

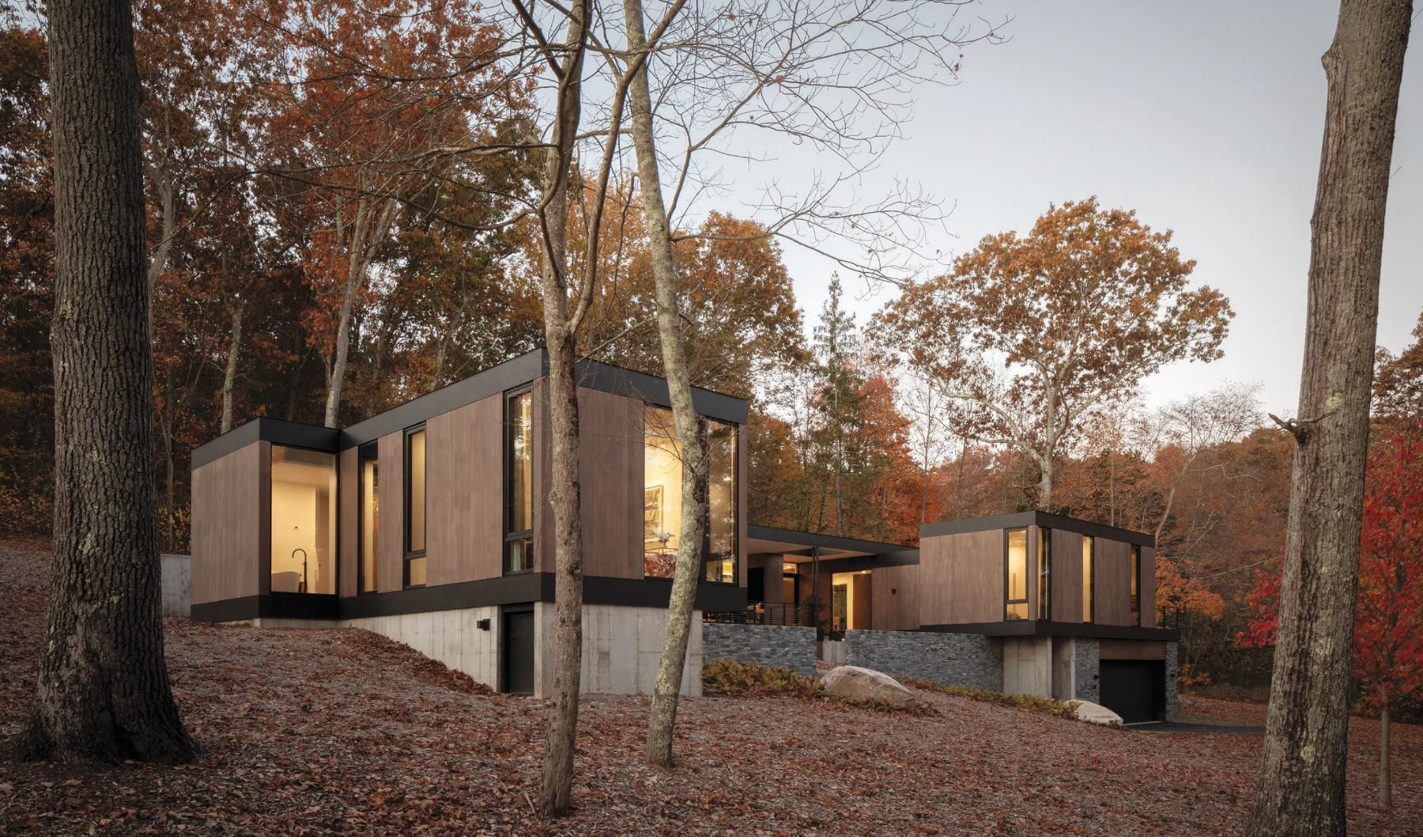
Sources

CLADDING: SWF Metalworks (panels)

WINDOWS/DOORS: Jansen, SWF Metalworks

FURNISHINGS: Jacobs Interieur, Atelier des Amis

LIGHTING: Corstjens, iGuzzini



House in the Woods

Deep River, Connecticut | Tom Lontine Architect

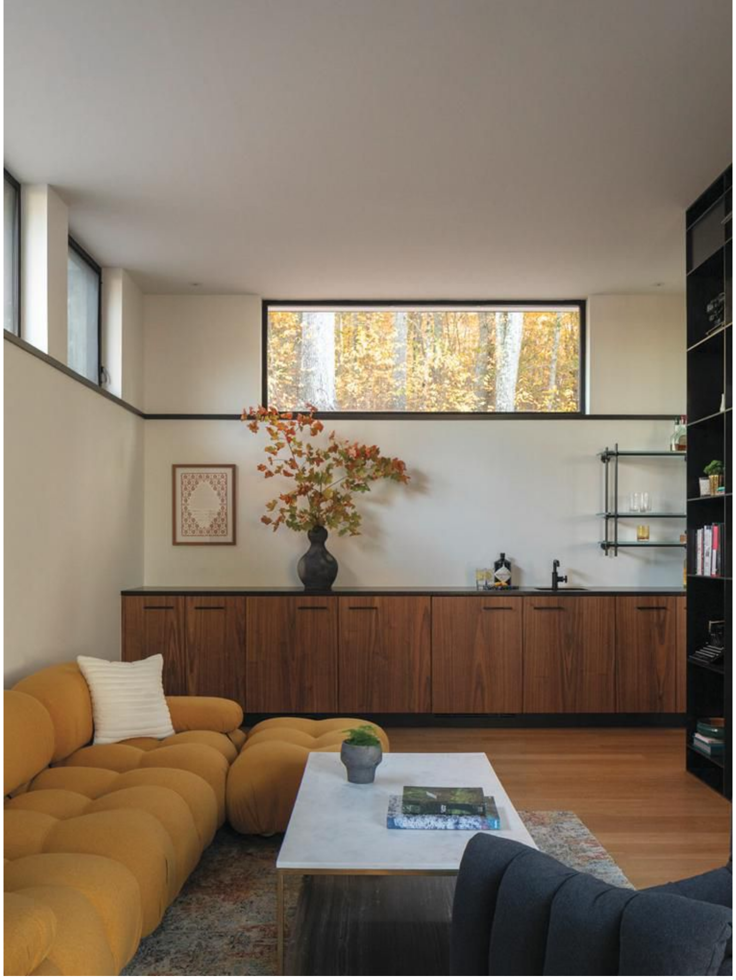
HEAD EAST on the winding, bucolic River Road in Deep River, Connecticut, and on your left is a hodgepodge of stone-wall-fronted residences and, behind them, the Connecticut River. To the right, hilly woodland dotted with newly built houses—most large, multistory, and forgettable. But there's one that quietly commands your attention.

Tucked into the trees at an elevation of 56 feet above the street is Tom Lontine Architect's Midcentury Modern–inspired House in the Woods, Lontine's first project since starting his own firm. Low-slung, clad almost entirely in dark cedar, and embedded in the hillside, the 4,400-square-foot home all but disappears into its surroundings—just as its owners intended. The married doctors, who moved to Connecticut from Salt Lake City, wanted a house where they could age in place, which led to a design adaptable to their changing needs. But they also wanted to minimize their impact on the site. "That's why the house is really quiet and positioned exactly where it is, and why the materials blend in with the surrounding trees," says Lontine.

Concrete was used for the foundation and walls embedded in the hillside, while almost everything else was built with standard two-by-six stud framing. It was constructed with an eye toward maximizing engagement with the 2.65-acre site, which was once part of cosmetics magnate Elizabeth Arden's estate. Visitors approach from the driveway up a long stair that passes under the guest bedroom, and emerge to a planted courtyard on the left and, ahead—through the front glass door and a window beyond—a picturesque view into the woods. After entering and turning to the central living space, a series of stepped rectilinear windows at the rear of the house—narrow and horizontal at higher points, larger and wider where the hill dips—mimic the shift in grade of the hillside and allow for glimpses to the trees. The north-facing wall of windows at the front of the house, meanwhile, offers an expansive vista of the property down to the river and, on the opposite shore, the densely forested Selden Neck State Park. The guest wing and laundry room, to the east, and the primary suite to the west extend out to form what Lontine describes as horse blinders to conceal the neighboring residences and frame the view. (The fourth volume of the residence is an office and home gym, behind the guest quarters, with the central living area's pavilion-like roof covering and unifying the connections.)

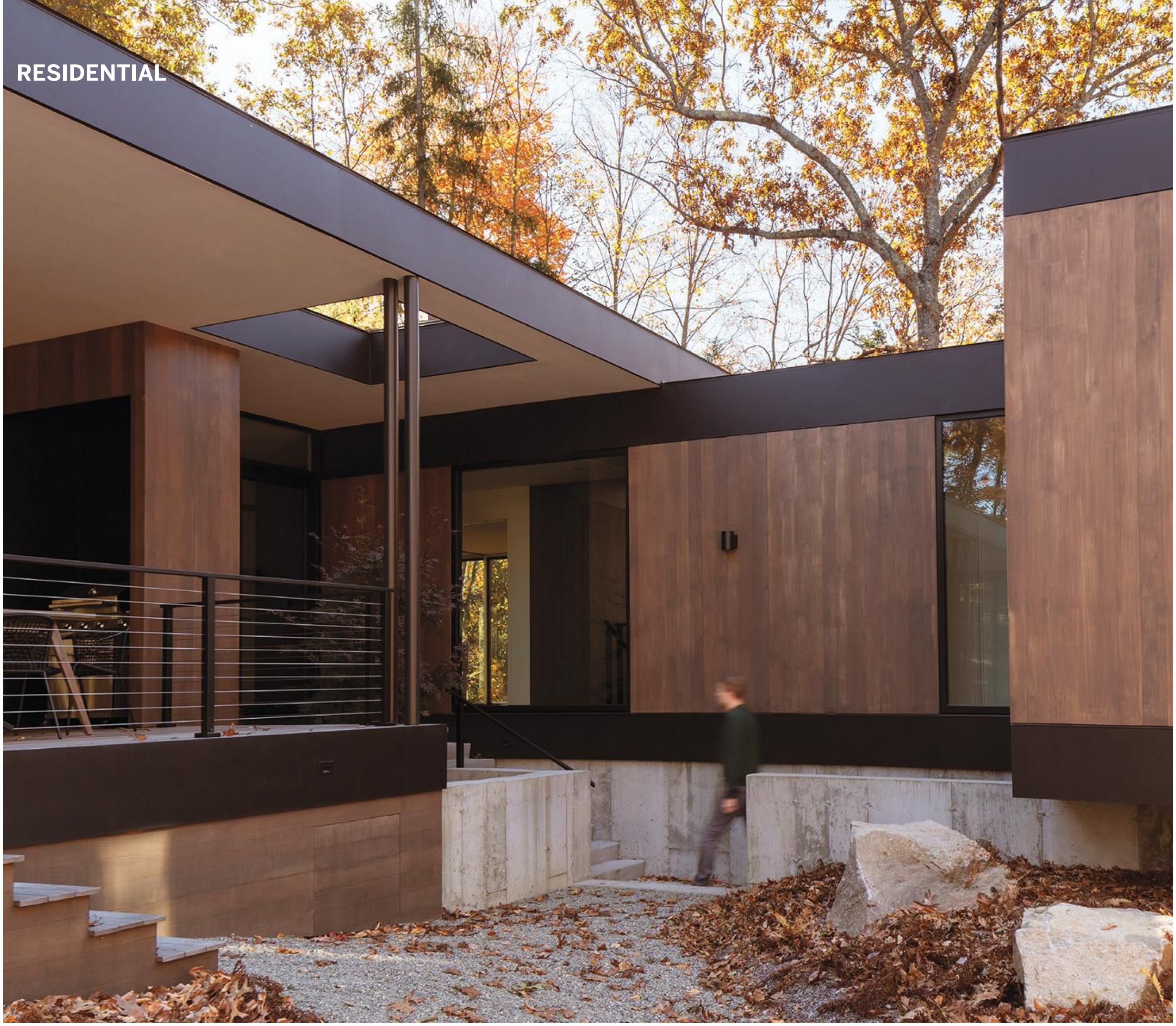
Except for totally enclosed areas on the lower level—a mechanical room and an unfinished space that will eventually house a golf simulator—windows are strategically placed to allow for near constant engagement with the surroundings. One in the primary bedroom perfectly frames a majestic maple; another at the top of a dark stairwell leading up from the garage gives the owners their own version of the guest-entry experience. The spectacular view from the central living area is accessible from nearly all spots in that volume: the informal kitchen and dining area, the laid-back entertaining space with low-to-the-floor furniture, and the more intimate den. (The latter two spaces are created by a welded-in-place metal partition with a double-sided fireplace.) This contributes to the overall sense of blurring between indoors and out. Slim black columns—some structural, the others downspouts—mimic the verticality of the property's trees, while the walls of the corridors connecting the living space with its two wings use the same wood that is found on the exterior.

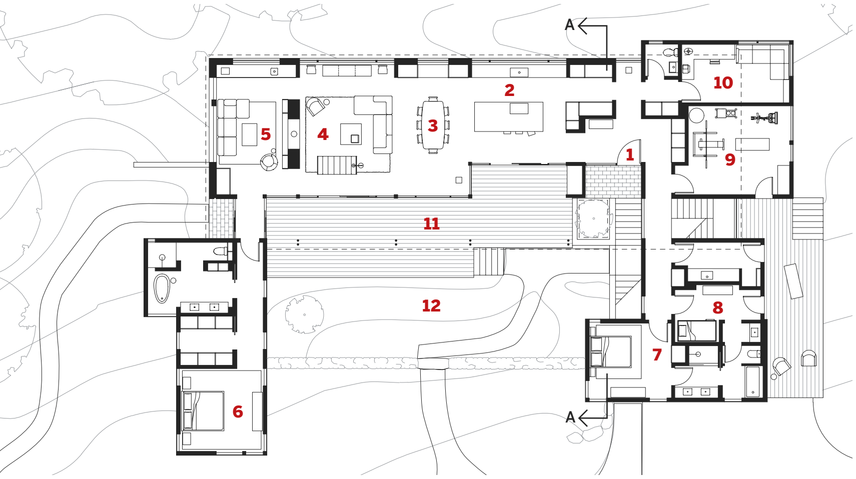
There's a palpable tranquility in this mediation between the domestic and the natural. At the house, it's easy to slow down and get lost in conversation—or in the landscape. Achieving this, though, was tough. Lontine had to negotiate a site that included challenges, from the preservation of as many of the large specimen trees as possible, per the clients' wishes, to dealing with a ledge that required blasting and earthwork, which the architect had hoped to avoid. A backlog with a local concrete contractor delayed the start of construction, and pandemic-related supply chain issues held up delivery of win-



OPEN SPACES (below, left) and intimate areas (left) alike are made calm and inviting by blurring the line between indoors and outside.

PHOTOGRAPHY: © NICHOLAS VENEZIA




A
2
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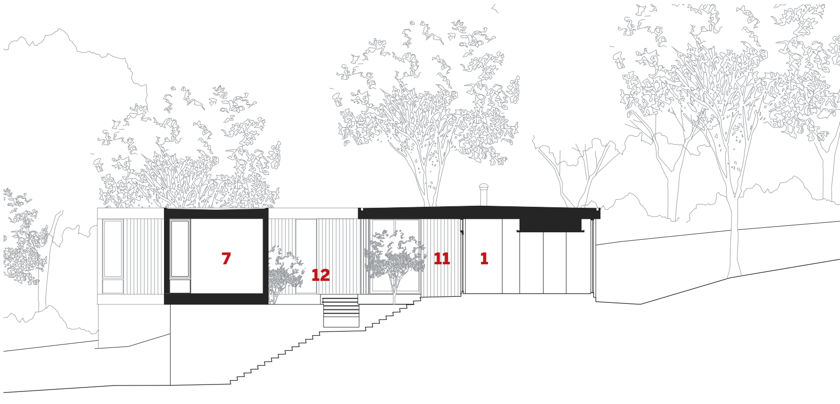
6
A

FLOOR PLAN

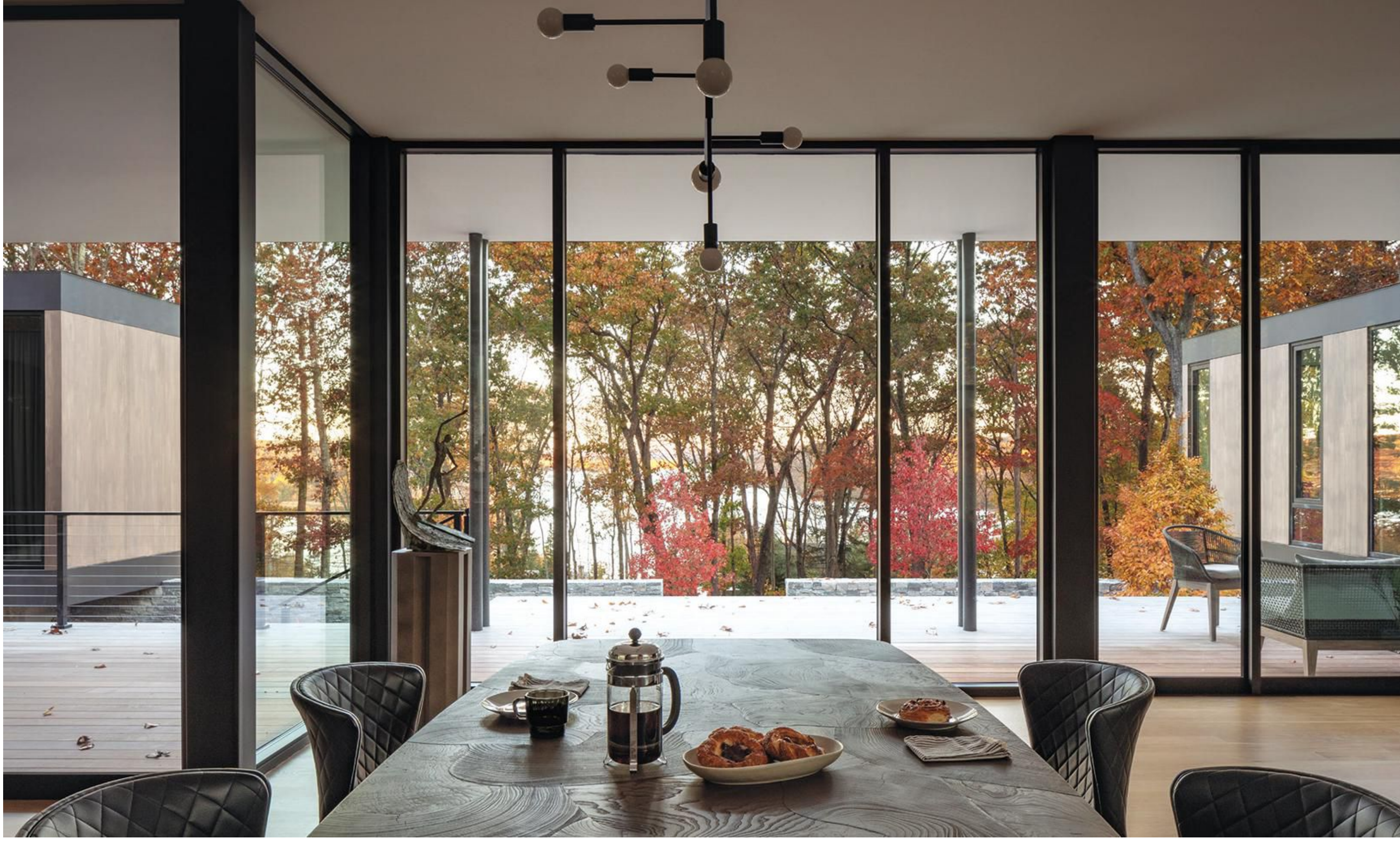
0 15 FT.
5 M.

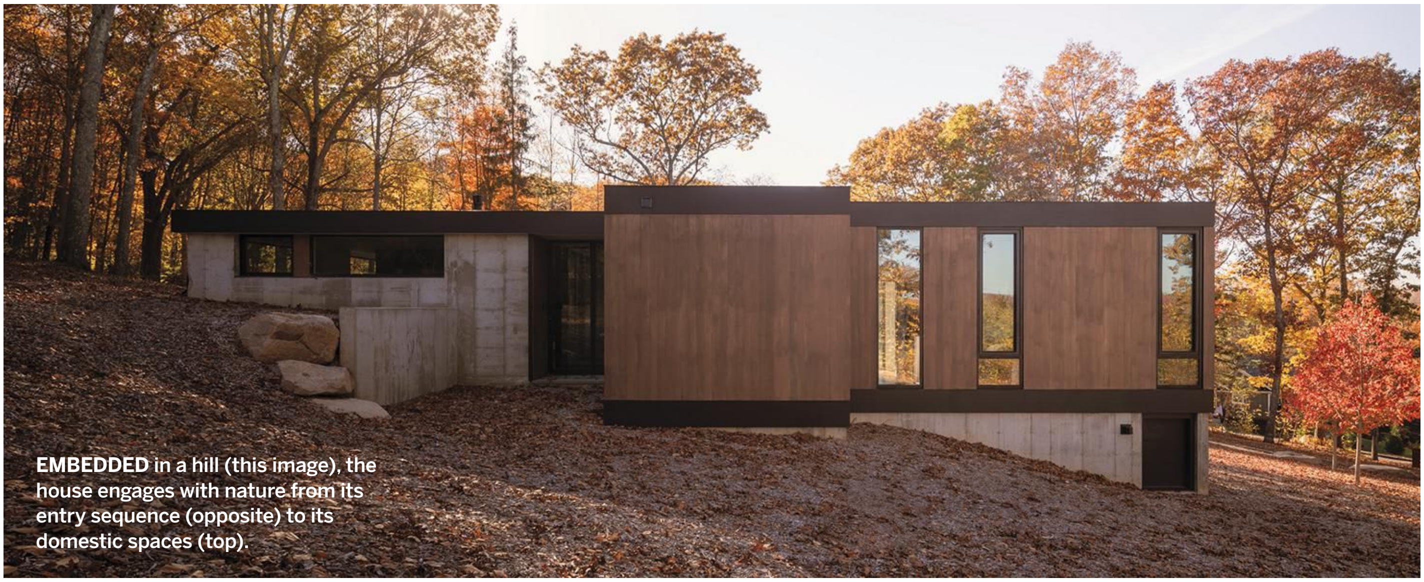


SECTION A - A

0 10 FT.
3 M.

1 FOYER
2 KITCHEN
3 DINING
4 LIVING
5 DEN
6 PRIMARY BEDROOM
7 GUEST BEDROOM
8 BUNK ROOM
9 GYM
10 OFFICE
11 COVERED DECK
12 COURTYARD





EMBEDDED in a hill (this image), the house engages with nature from its entry sequence (opposite) to its domestic spaces (top).

dows and cabinetry. In the end, it took a year and a half to build House in the Woods.

"The more constraints I have, the better, because that really helps give me a starting point," Lontine says. Still, he admits that "it got tough at the end," not only for the architect trying to get his firm's first project completed but for the owners eager to move into their new home. "But then, once their furniture was delivered and we were sitting at the dining table, right around peak fall, it was, OK—yeah, this is worth it." ■ *Dante A. Ciampaglia*

Credits

ARCHITECT: Tom Lontine Architect

ENGINEER: E2 Engineers

GENERAL CONTRACTOR: Sapia Builders

CLIENT: withheld

SIZE: 4,400 square feet

COST: withheld

COMPLETION DATE: December 2023

Sources

RAINSCREEN: Exitera

DOORS: Arcadia

CHAIRS: Hem

KITCHEN SYSTEM: Space Theory

PLUMBING: Rohl, Kohler (bath fittings); Clarke Products, Duravit (tubs)

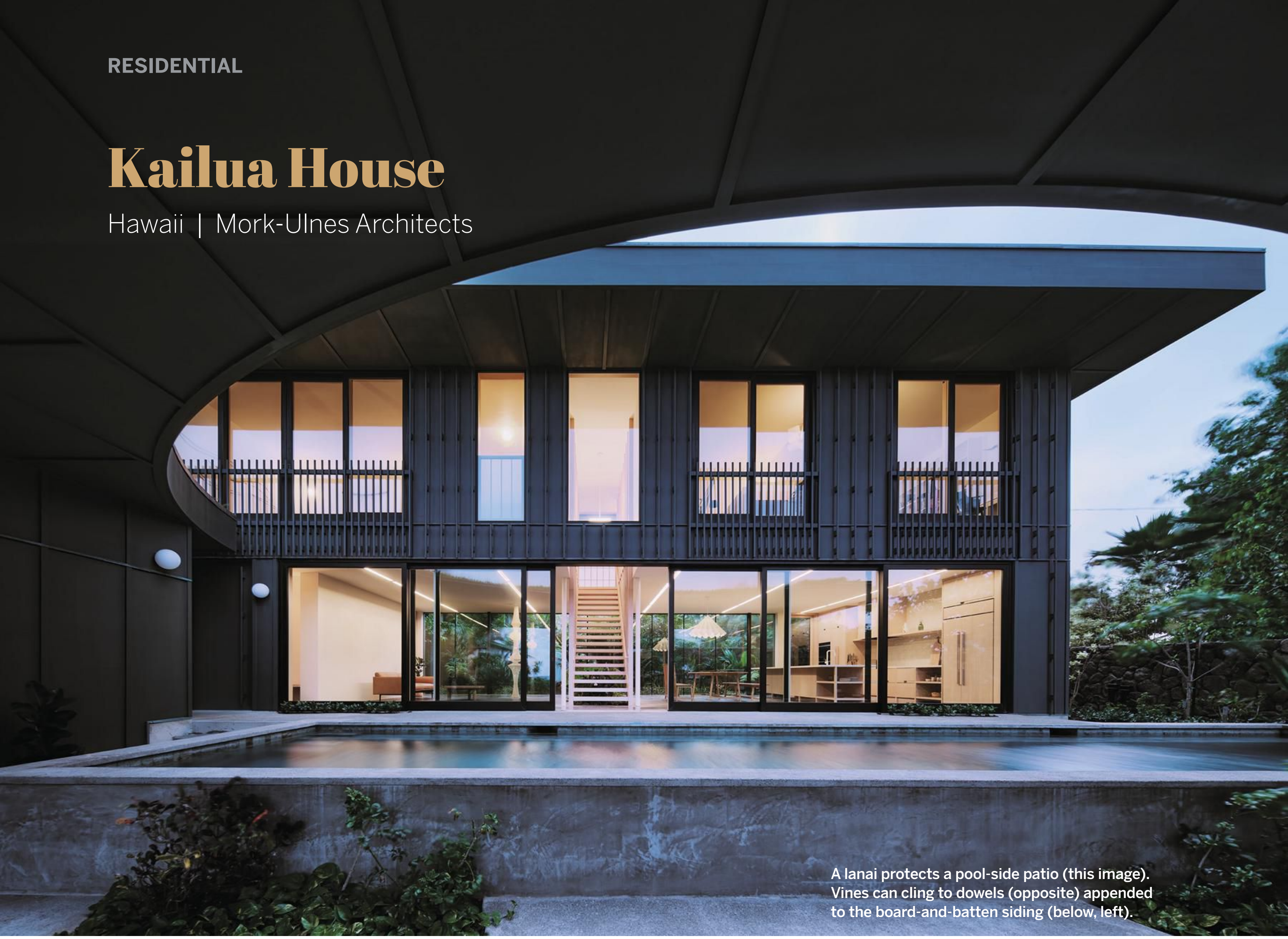
LIGHTING: WAC (downlights and exterior); Bocci, RBW (decorative); Leviton (control)

INTERIOR FINISHING: Nemo Tile (floor and wall tile); Emtek (lockset and pulls)

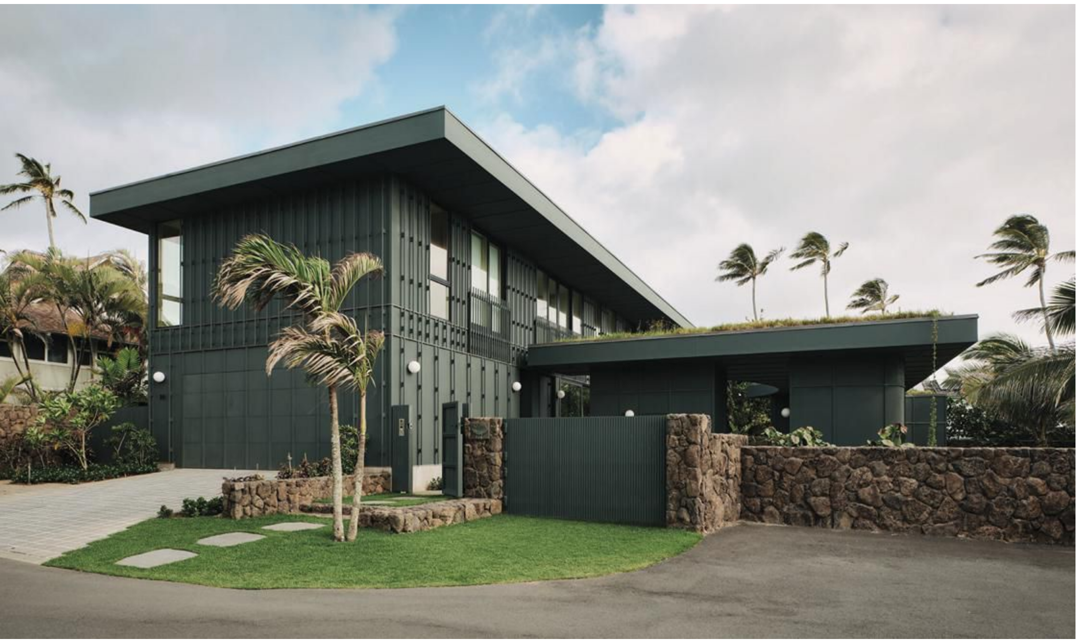
SECURITY DEVICES: Google Nest

Kailua House

Hawaii | Mork-Ulnes Architects



A lanai protects a pool-side patio (this image). Vines can cling to dowels (opposite) appended to the board-and-batten siding (below, left).



PHOTOGRAPHY: © JOE FLETCHER

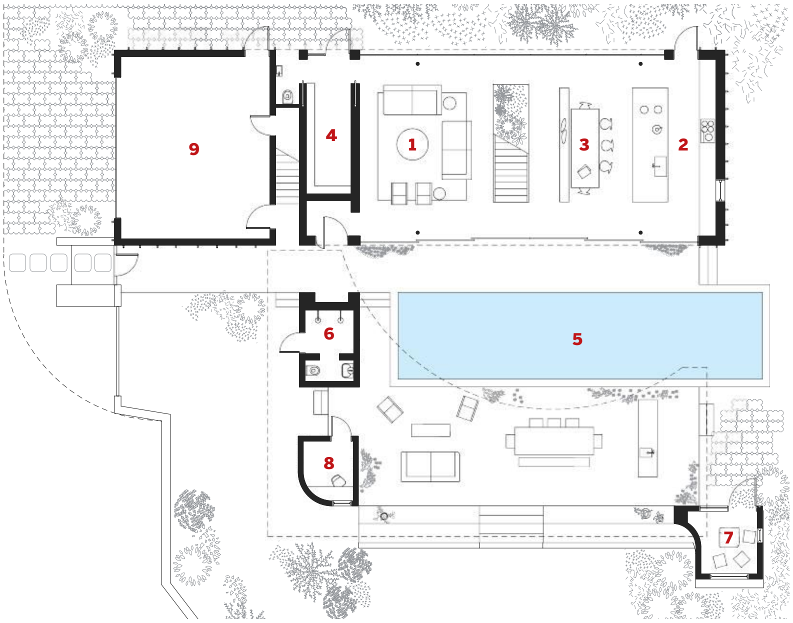
CULTIVATING a way of living that's equally comfortable inside and out is an aspiration with as many inflections as there are cultures. A house in Kailua, Hawaii, by Mork-Ulnes Architects draws on both Modernist and Indigenous traditions, effecting a melding of building types developed in contrasting climates. From San Francisco, the architects—where they met their clients—picked up the dream of California living, epitomized by the famous Case Study houses throughout the state. Two thousand miles west, where Kailua House is located on the island of Oahu, the architects found a local veranda type called the lanai. And, heading back 7,000 miles east (and a little north), to Mork-Ulnes's home base in Oslo, they brought in the functional efficiency and warm introversion of Norwegian wilderness cabins.

Surfboards leaning below a shower to wash off salt and sand attest to the draw of the island locale. Kailua House is situated a block from the beach in a dense suburb of Honolulu with a low-rise, 1950s ambience. But Hawaii's largest city is separated from its suburb by a mountain range. Emerging from the tunnel connecting the two and looking back, one has the impression of entering a hidden cove surrounded by a verdant backdrop of mountains, says firm founder Casper Mork-Ulnes. The challenge for the architects was to create a similar sense of immersion on their site.

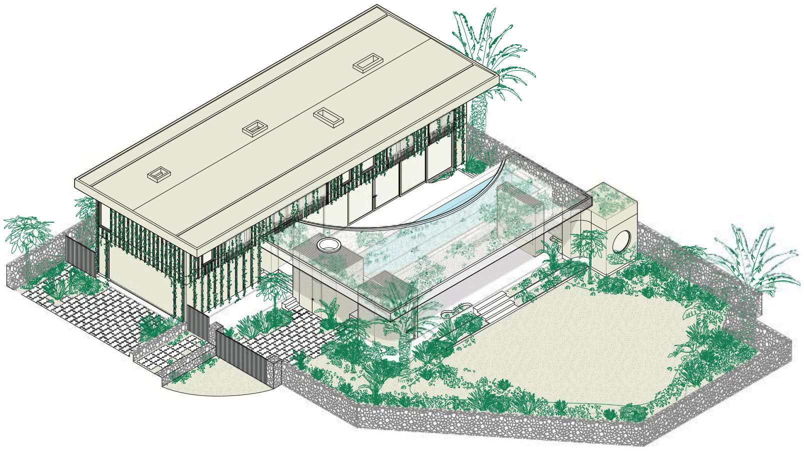
The architects' big move was to employ a lanai—a veranda to protect from the elements and create a sense of enclosure. The indoor portion of the house is a compact two-story bar backed up nearly to the property line on one side. On the opposite side, the space opens to a patio and pool before stepping down to a carpet of green. It's in this area that the lanai frames space, doing so in two directions. From above, the curve of the lanai springs from the house and swoops around the pool, creating a pocket of light surrounded by shadow—like the space at the end of a dark tunnel. Looking back from the yard, the lanai likewise produces a frame of shadow around a glowing expanse that continues inside the house, enhanced by a material palette centered on light-hued Douglas fir.

Every culture has its own version of the veranda, of course, and Mork-Ulnes jokes about the Norwegian inflection: "Everybody in Norway has a simple cabin, and, particularly with the seaside ones, you often have to go outside to move from room to room, using a covered walkway—a Norwegian lanai, you could say." It was these cabins that brought the architects and clients together. After moving around when younger, Mork-Ulnes settled for a while in San Francisco and opened an office, which is still the firm's largest. When a tech engineer at Google and a former exchange student to Norway came through the door looking to renovate a Victorian house in the city, affinities were immediately apparent. The couple had developed a habit of visiting the Norwegian countryside, where they admired cabin accommodations' stripped-down interiors, bunk beds for sleeping, and pastel colors to reflect the sun's precious rays.

A chance to work remotely brought the pair and their children to Hawaii, and they're now set up to inhabit the patio. A third component of the Kailua House, besides the primary house enclosure and the lanai, is a series of volumes that hold up the roof, one containing a workspace, others a tearoom, a shower, and a kitchen. This set of functional blocks continues inside in the form of a library and a stairway. The rest of the wide-open living area is set against a backdrop of vegetation planted with species that tolerate salt spray. Above, compact rooms gather other domestic components, like bedrooms, a studio, and laundry,



FIRST-FLOOR PLAN



AXONOMETRIC

1 LIVING
2 KITCHEN
3 DINING
4 LIBRARY
5 POOL
6 SHOWER
7 TEA ROOM
8 OFFICE
9 GARAGE

A staircase (below, left) divides the living and dining spaces, which are immersed in lush greenery (this image).

that make the whole house work.

The upstairs perch opens to a view of the ocean and across the lanai, which is planted with a green roof meant to grow in lushly, and the whole house is wrapped in board-and-batten siding with a crucial addition of vertical dowels that will, in time, allow vegetation to overtake it entirely. Once the green-stained walls are covered with vines, the family will find itself in a most unlikely scenario: a Norwegian cabin inside a tropical jungle. ■ *Matthew Allen*

Credits

ARCHITECT: Mork-Ulnes Architects — Casper Mork-Ulnes, Lexie Mork-Ulnes, Robert Scott, Will Dolin, Greg Ladigin

CONSULTANTS: Delta Engineering (structural); Terremoto (landscape); Fujita Netski Architecture (design)

GENERAL CONTRACTOR: Concept 2 Completion

CLIENT: withheld

SIZE: 5,125 square feet

COST: withheld

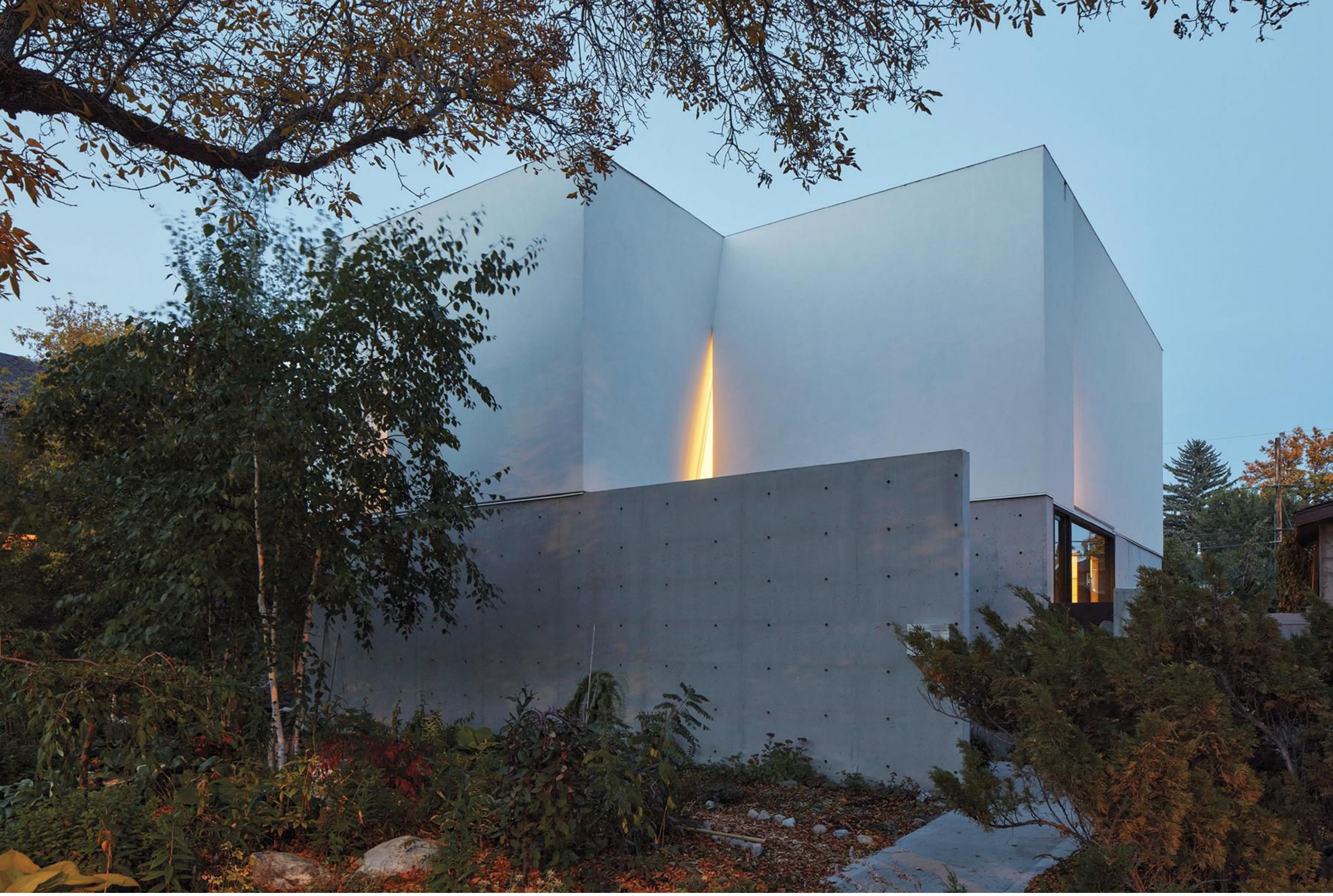
COMPLETION DATE: March 2024

Sources

WINDOWS/DOORS: Quantum

ROOFING: Green Roof Solutions, Roofterra

PAINTS/STAINS: Sherwin-Williams, Benjamin Moore



Arthur Residence

Regina, Saskatchewan | 5468796 Architecture

PHOTOGRAPHY: © JAMES BRITTAIN

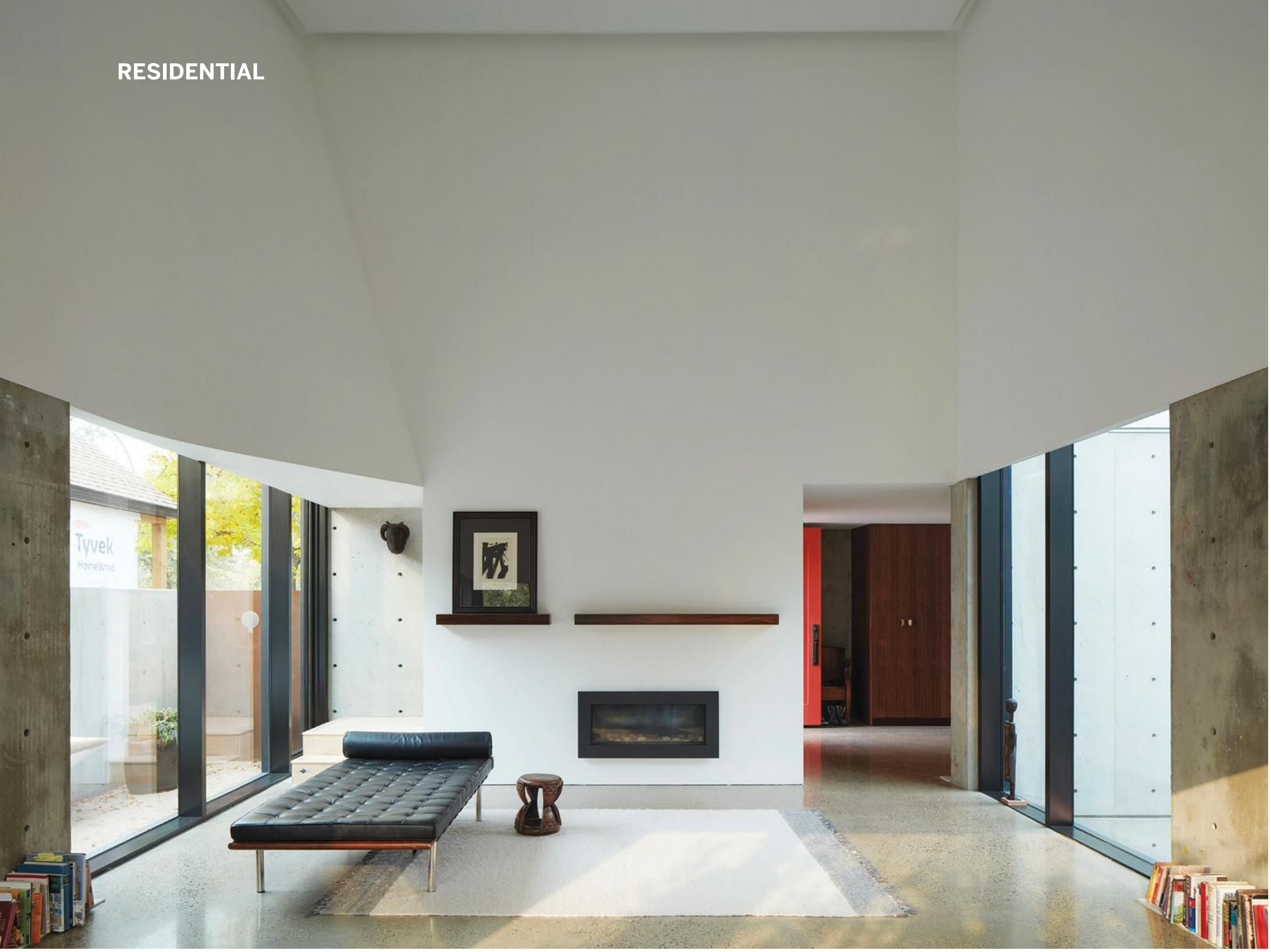
IT IS TRUE: this sleek, white concrete-and-stucco-walled house does stand out boldly among the rough-hewn wood vernacular cottages in its residential section of Regina, Saskatchewan. The designer, 5468796 Architecture, based in Winnipeg, Manitoba, explains that the clients, David and Jane Arthur, are adventurous: They uprooted themselves from South Africa some years ago and relocated to this midwestern Canadian city of 250,000, known for its rugged landscape and extreme temperatures (dipping down to 22 degrees below zero Fahrenheit in the winter, and soaring up to 100 degrees Fahrenheit in the summer). Over 10 years ago, the Arthurs —he is a carpenter, she an ER doctor—found a lot, 125 feet long and 40 feet wide, on which sat an unprepossessing bungalow.

The Arthurs told the architects they had no preconceived notions about the look of the new house, just something distinctly different and surprising. They also wanted intense privacy—Jane especially, since she often slept during the day after late nights tending to emergencies. A bunker, of course, would solve the problem. Yet the couple also desired ample daylight and immediate access to the outdoors to satisfy their gardening urges. Another request: they did not want doors between the rooms.

These considerations prompted 5468796 to come up with an ingenious solution for the tight site. The long, rectilinear plan of the main floor evokes the theoretical court-house schemes drawn up by Mies van der Rohe in the 1930s. These typically single-story structures, bound on the perimeter by enclosing walls, contained paved or grassy open courts inserted by Mies to be easily accessible from the houses' glazed interior spaces. For a Canadian reprise, 5468796 swerved from the Miesian typology and responded to the Arthurs' brief by adding a second floor for bedrooms, as well as a below-grade apartment for family members or renters.

In manipulating the Miesian plan, the architects designed the second floor so that the open courts were unobstructed yet could still accommodate two discrete bedroom suites, each with its own stair. A sunken court allows the level belowground to receive daylight for its two bedrooms and a living/dining area. "The plan is the magic of the design," says principal Colin Neufeld about the 3,450-square-foot house.

The plan also calls for visitors to zigzag to the main entrance: you follow a path from the street along the south edge of the site,



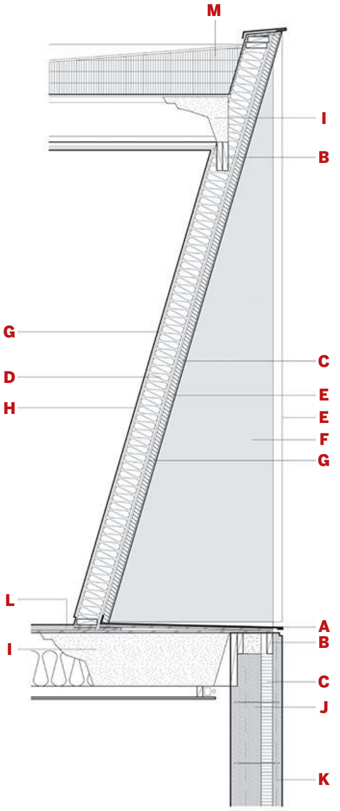
The concrete floor of the living/dining area has a smooth aggregate surface. A library of books runs along the edges of these rooms on a wood plank placed on the floor, which also acts as a chase for electrical outlets (top and opposite). The plan is defined by open courtyards (above).

then veer left at a freestanding concrete cross wall. Finally, you walk through a dusky red-painted wood door crafted by David Arthur. Inside a small vestibule, you immediately turn to the right, where you find the living/dining area expansively opening up, enclosed on both sides by glass walls with black fiberglass frames. The glazing on the south wall reveals a linear slot of space open to the sky; on the other side, it overlooks the sunken court.

To enhance the spatial drama of the living/dining area, the architects pushed the flat ceiling up to double height and wrapped the upper portion of this volume with curved plaster surfaces, warped to create an eccentrically shaped overhead vault. (Thoughts of Hans Scharoun's interiors mingle with memories of Miesian planimetric experiments as one takes this in.) Another indoor court opens off the living/dining area and the kitchen, enclosed at the rear by the concrete wall of a one-story garage. Adjoining the garage, a carport for extra vehicles and gardening equipment is, in turn, protected by a

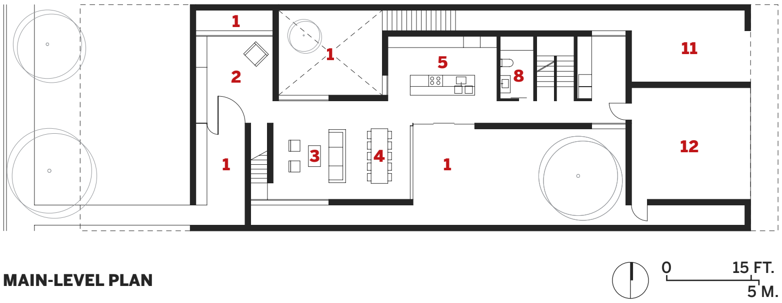
24-foot-high stucco over wood-frame canopy that forcefully extends the roofline of the second floor. Also here, an entrance path to the lower-level apartment runs along the northern edge of the house, ending in a stair down to the sunken court.

Varied materials give this volumetric entity its distinctive character. The first floor, cast-in-place concrete, was executed in two pours: the first created structural walls 8 inches thick; the second, composed of 2½ inches of self-consolidating concrete, gives the exterior surface a smooth sheen with little spalling or air pockets. Neufeld remarks that the concrete

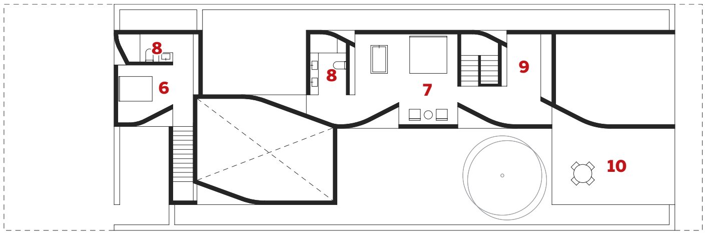


UPPER-LEVEL WALL SECTION

A COPPER ROOF
B WOOD FRAMING
C RIGID INSULATION
D BATT INSULATION
E ACRYLIC STUCCO TOP COAT
F TRIANGULAR WINDOW
G PLYWOOD SHEATHING
H INTERIOR PLASTER FINISH
I SPRAY-FOAM INSULATION
J LOAD-BEARING CONCRETE
K FINISHED CONCRETE VENEER
L 1½" CONCRETE FLOOR TOPPING
M SLOPED RIGID INSULATION

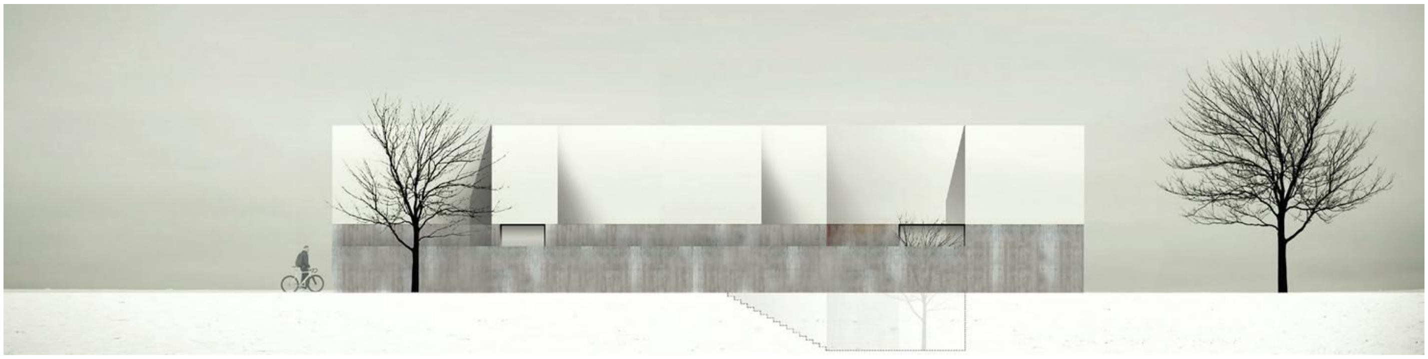


MAIN-LEVEL PLAN



SECOND-LEVEL PLAN

1 COURTYARD
2 ENTRY
3 LIVING
4 DINING
5 KITCHEN
6 GUEST BEDROOM/OFFICE
7 MAIN BEDROOM
8 BATHROOM
9 WALK-IN CLOSET
10 TERRACE
11 CARPORT
12 GARAGE



The red-painted wood entrance (right) and triangular window openings on the second floor (opposite) were crafted by the carpenter client.

has survived the weather well, particularly since embedding insulation between the two pours helped eliminate exposure problems.

On the second floor, the structure changes to a timber framework surfaced with acrylic stucco. The shift from a concrete to a wood structure enabled the architects to create a sophisticated solution for the bedroom windows. In working with the carpenter client, they calibrated the curve of an array of 2-by-6-inch wood studs, 8 inches on center, and then increased the spacing to 16 inches on center where it becomes a straight wall. Triangular openings created by the interstices between the arc and the straight-wood formation provide the only glazed apertures on this level.

The supple dexterity with which these window structures are fabricated allows daylight to softly suffuse the bedrooms without the need for blinds, curtains, or shades. At night, the interior light seems to seep out through these crevices, much like an abstract jack o' lantern.

The design process involved several revisions, yet the collaboration between the client and the architects sparked invention not only in the development of the concrete structure and fabrication of the intricate wood windows, but in the crafting of furniture by David Arthur, and the landscaping carefully cultivated by both clients. The result is as requested—a house nestled into its surroundings that is indeed quite different and very surprising. ■ *Suzanne Stephens*

Credits

ARCHITECT: 5468796 Architecture

ENGINEER: Lavergne Draward Associates (structural)

GENERAL CONTRACTOR: Holz Custom Prefab

CLIENT: David and Jane Arthur

SIZE: 3,450 square feet

COST: $700,000 (construction)

COMPLETION DATE: April 2023

Sources

CONCRETE: Lafarge

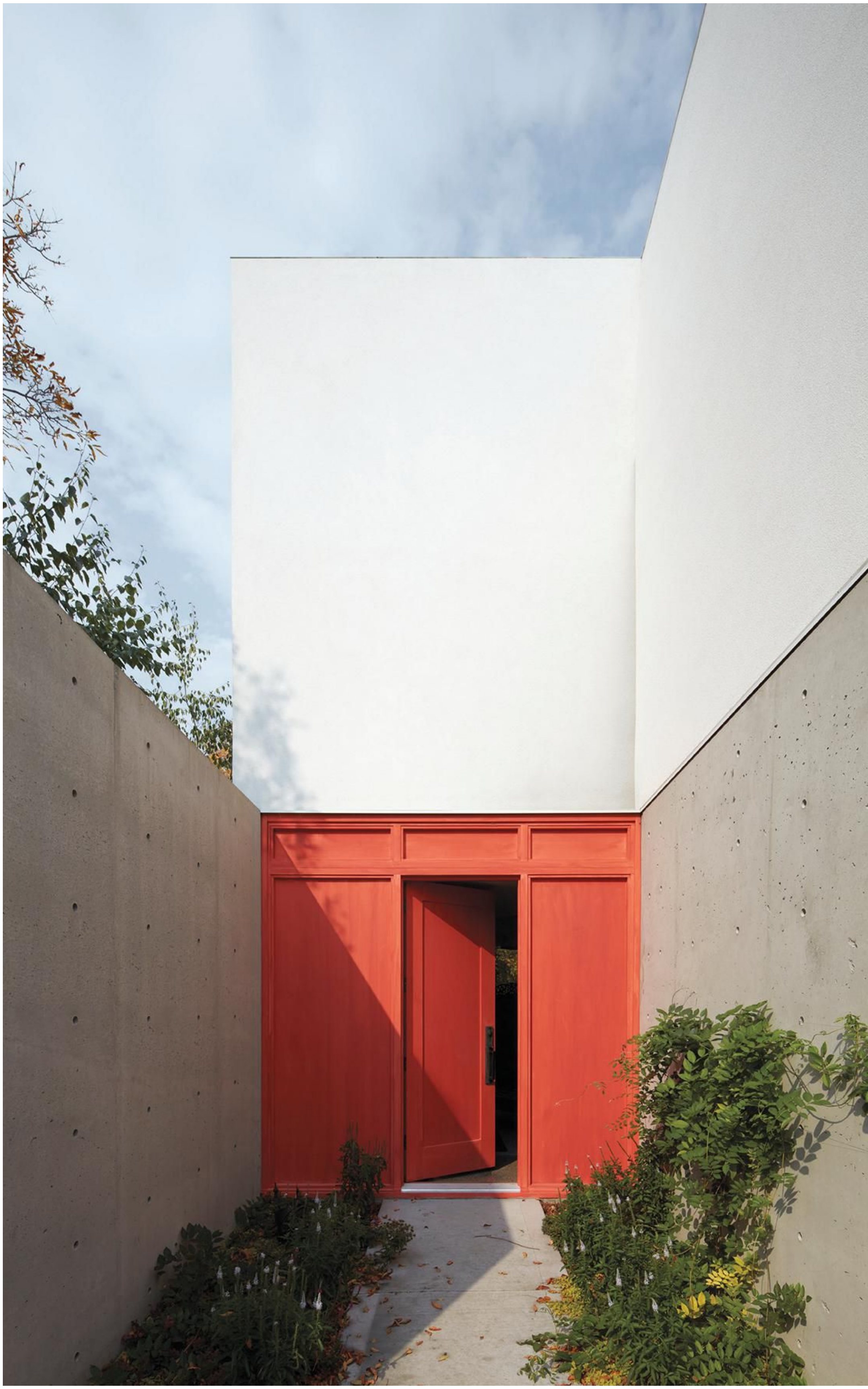
CURTAIN WALL: Duxton Windows & Doors

EXTERIOR CLADDING: Sto

ROOFING: Soprema

PAINTS AND STAINS: Sherwin-Williams

HARDWARE: Emtek



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LAGO DI GARDA is much quieter and less star-studded than the better-known Italian lakes of Como and Maggiore. And reaching Riva, as the locals call it—the town at Garda's northernmost tip—requires some real grit and gall from the driver's seat. The winding cliffside road leading there, which darts in and out of tunnels, some single-laned, is certainly not for the faint-hearted. But the destination's crystal-clear water, warm if breezy microclimate, and Alpine backdrop make the journey well worthwhile. Adding to its mystique: the 17,000-person town in the province of Trentino feels suspended between cultures. The area had previously been a part of Austria-Hungary, until 1919, when it was annexed by Italy. Walking through the streets, one can hear German seemingly as often as Italian.

This idyllic setting made Riva del Garda a prime location, at the turn of the 20th century, for the construction of a large public hospital that promised patients a secluded and carefree recovery. Inaugurated in 1902, and situated on a hill overlooking the city, the Ospedale-Ricovero served that purpose until, ultimately, the same relative remoteness, exacerbated by changes in approach to patient care, pushed the institution into a state of disuse. In 2009, a partnership formed between Euro Project Engineering Consulting and the Milan-based Cino Zucchi Architetti (CZA) beat David Chipperfield Architects and others in an international competition to reenvision the hospital campus as an assisted-living facility, "in such a way that the structures truly become residences, places of life, therefore pleasant and serene," as the brief put it.

The former hospital comprised four parallel linear buildings, each dedicated to a different medical field and connected by a long, glazed corridor that bisected them. CZA's scheme proposed razing two of the dilapidated structures and using the remnants of a third as the spring point for new construction. (The fourth building, still extant, now serves as a high school.) In realized form, the assisted-living facility—called the Welcoming Citadel—features a polygonal plan that is reminiscent of a medieval fortress's, with its sole point of inflection marking the entrance, and a multilevel, starburst-shaped courtyard at its core. "There is a bit of a Colin Rowe *Collage City* attitude, or even of Camillo Sitte," says principal Cino Zucchi. "It borrows from this idea that, in the old cities, open spaces were carved out of a solid mass."

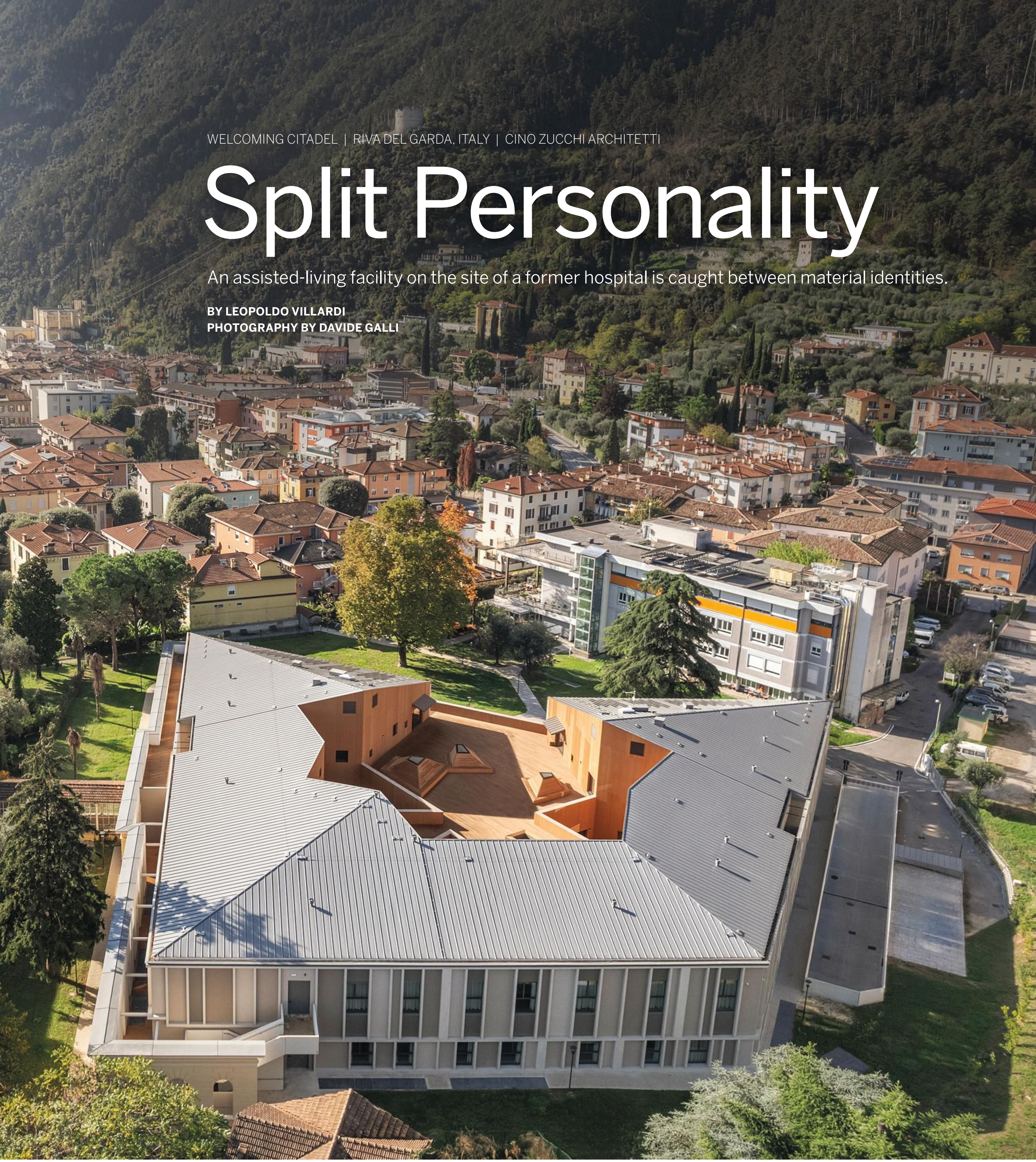
A ring of circulation wanders throughout

WELCOMING CITADEL | RIVA DEL GARDA, ITALY | CINO ZUCCHI ARCHITETTI

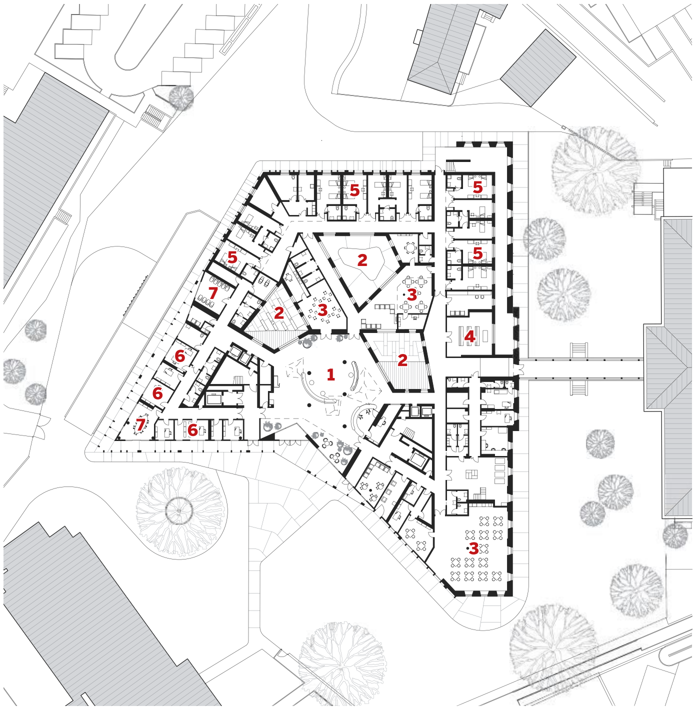
Split Personality

An assisted-living facility on the site of a former hospital is caught between material identities.

BY LEOPOLDO VILLARDI
PHOTOGRAPHY BY DAVIDE GALLI



A FRAME (opposite, top) wraps the Citadel, which incorporates a facade from the old hospital (opposite, bottom). The inner courtyard features an upper level that overlooks intimate spaces (left).


5
5
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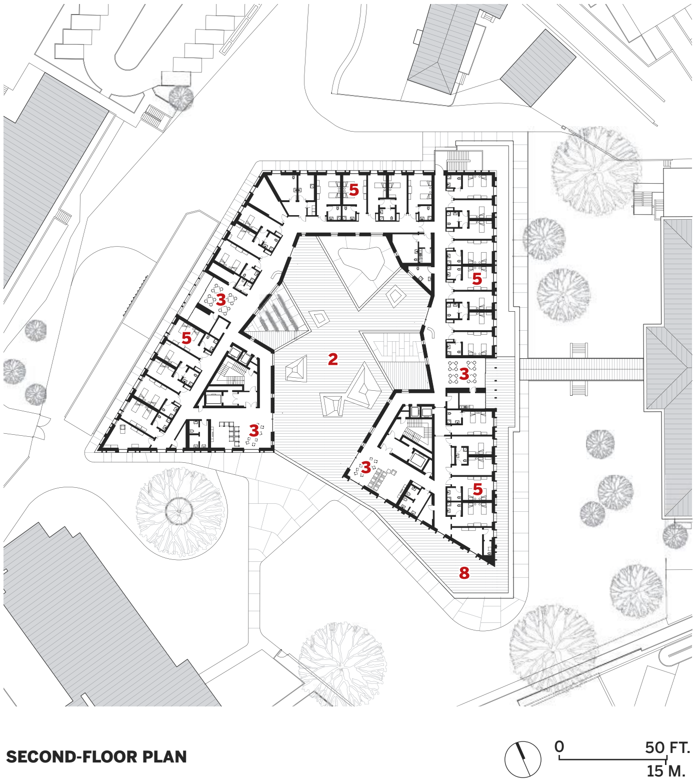
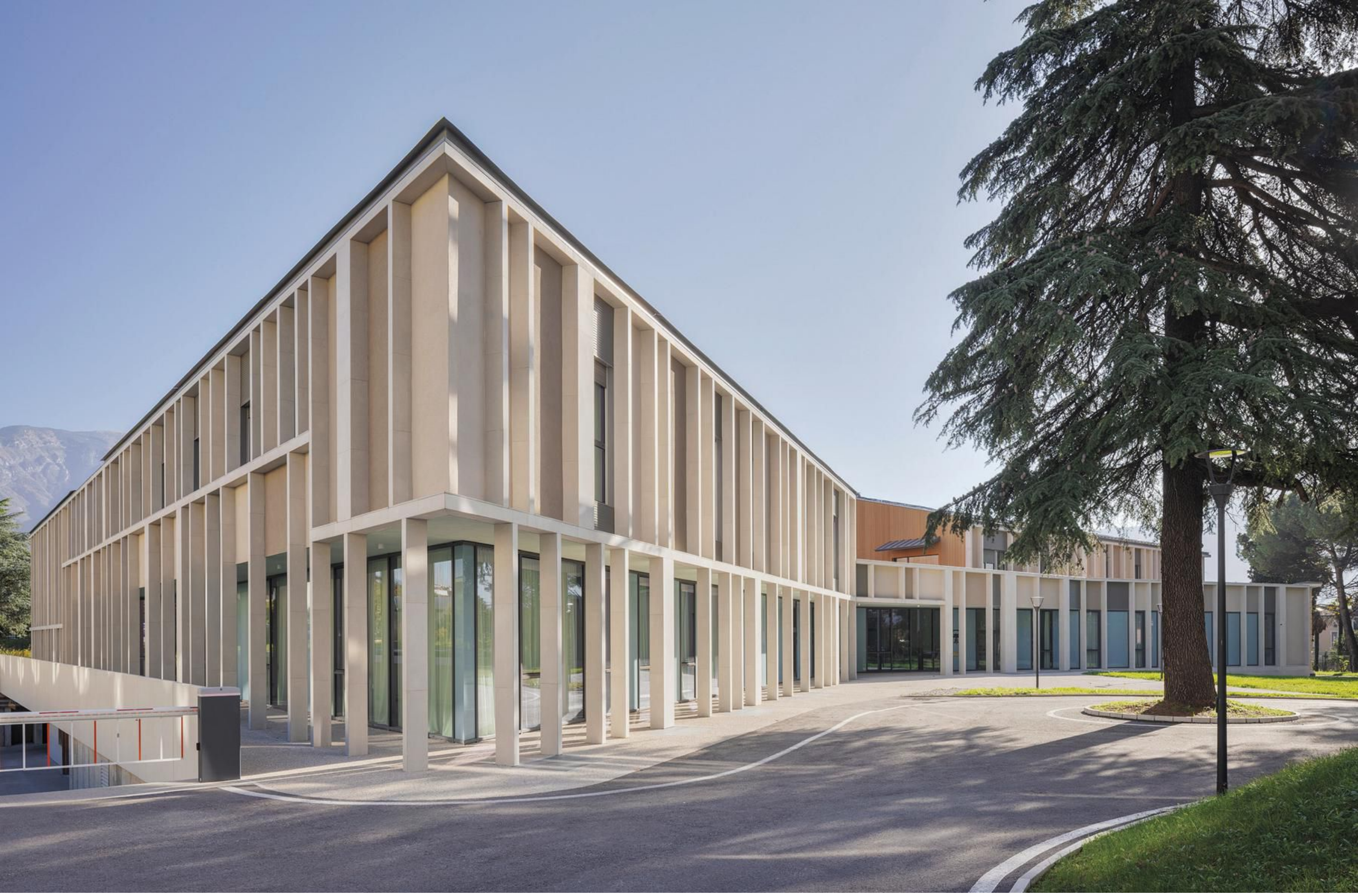
3

GROUND-FLOOR PLAN


5
3
5
2
3
5
3
3
5
8
0
50 FT.
15 M.

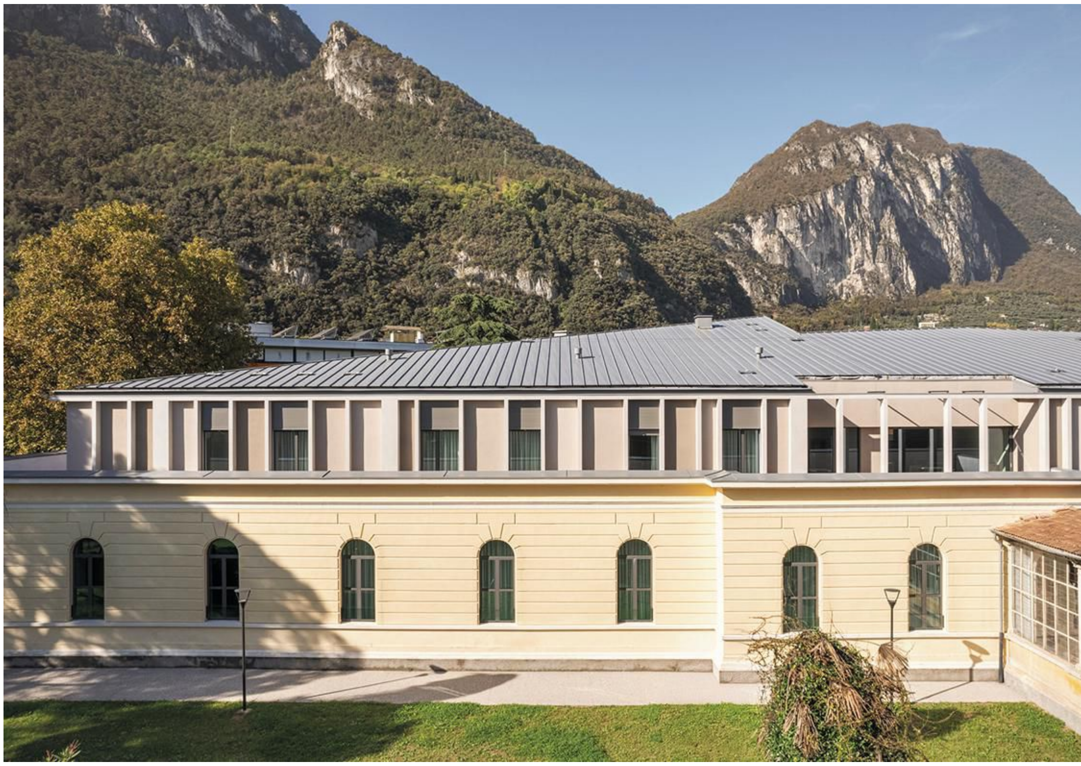
SECOND-FLOOR PLAN

1 RECEPTION AREA
2 COURTYARD
3 LOUNGE
4 CHAPEL
5 RESIDENT ROOM
6 OFFICE
7 CONFERENCE ROOM
8 TERRACE



the building, leaving very few dead ends but many pockets of space for any of the 60 elderly residents, plus 20 more who join only for daytime activities, to socialize. On the ground floor, there are offices for on-site attendants and various amenities, including a chapel. “The idea was to, as much as we could, avoid looking like a hospital, even though some of the same services are offered here,” Zucchi says. “We wanted to make convivial spaces.” This was not an easy balance to strike, considering that about a third of the inhabitants suffer from dementia and need close monitoring, or with the many prescriptive building codes (importantly intended to safeguard residents) that can stifle architectural experimentation. Many of the interiors are muted, with simple details. Despite this, intimate courtyards planted with olives and rosemary, expansive views from individual rooms and the hallways, and a reception area with punched skylights and sinuous furniture, confer a special character.

Outside, the Citadel is wrapped in a highly articulated lattice, clad in ceramic panels, with a cornice and long stringcourses that

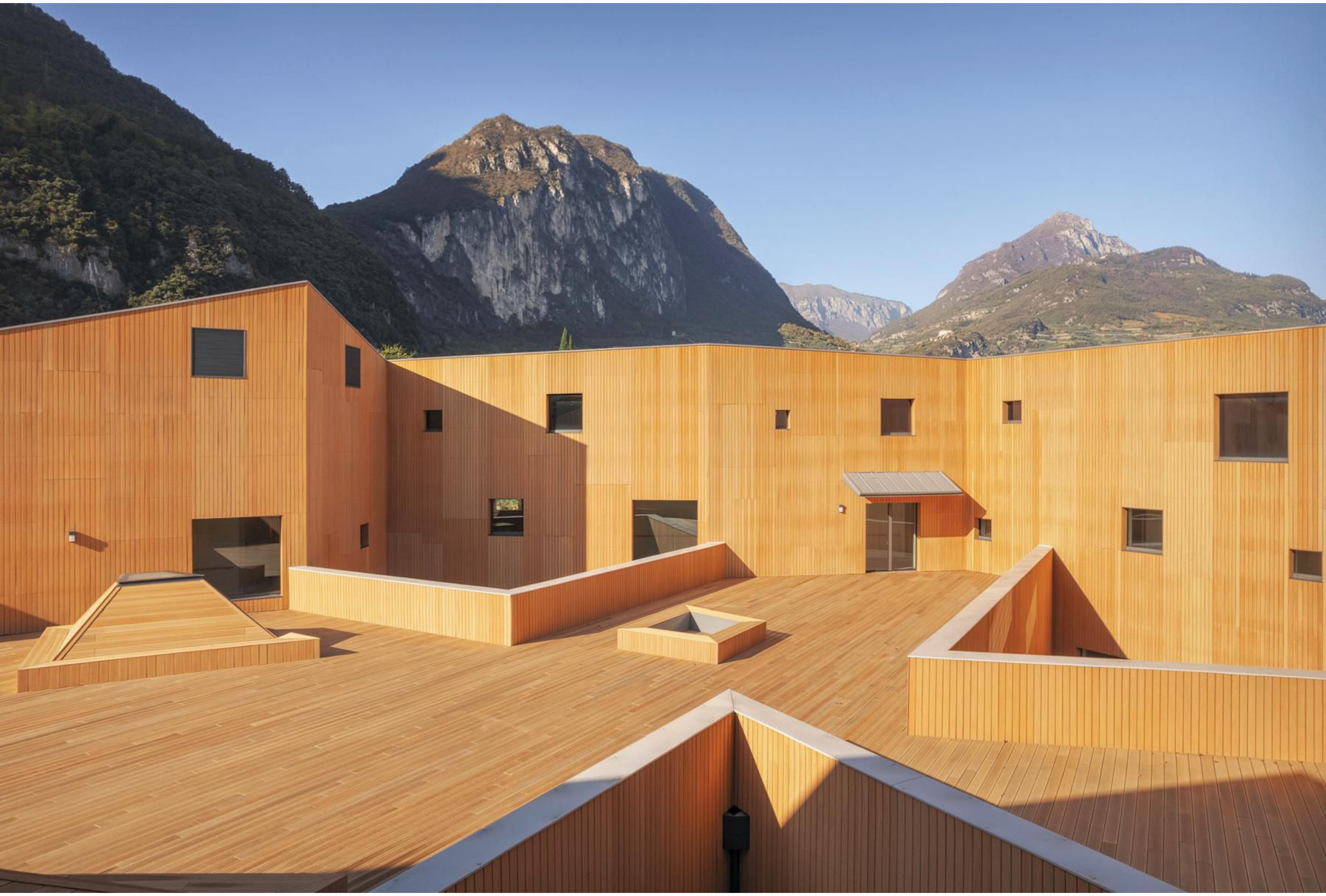


both emphasize horizontality and create sharp acute corners. A staccato arrangement of slender and thick columns creates orthogonal frames that are either filled with tricolor paste-dyed plaster panels and windows, or are left open to form loggias. Rigor clearly undergirds this layered and unpretentious composition. “Stately,” Zucchi rightly calls it, suggesting a relationship with the Neoclassical language of the former hospital partially incorporated into the new building. But it also recalls the many *limonaie*—simple post-and-beam structures for cultivating lemons—that uniquely dot Garda’s lakefront.

The inner courtyard seemingly exists in a different universe, one that the architect likens to “a picturesque village.” Here skylight enclosures rise into abstract pyramidal volumes that double as outdoor seating, and raised planters await springtime landscaping. The space is almost entirely enclosed by a low-slung roof that rises and falls, choreographed in tandem with the Alps in the distance. To the south, a terrace offers elevated views of Garda. Many of the courtyard’s architectonic elements playfully distort scale—square apertures of varying sizes stipple the faceted inner walls, which have been lined with planks of composite lumber in an abstract, coursed pattern. The windows also serve to disguise the uppermost attic story, which houses mechanical equipment.

Like the Roman god Janus, often depicted with visages facing two different directions, the Citadel is fixed in a state of duality. The exterior no doubt corresponds to the stony materiality of Riva’s Italianate city center, while the smoother ligneous court carved out of the building mass subtly nods to the timber construction typical of Mitteleuropa farther north but still present in the area. But the building also seems to be a tacit acknowledgement of Zucchi’s longstanding fascination with the facade frame—a signature of sorts explored in many of his firm’s projects—while simultaneously trying to break from it. Or can it be read as an architectural representation of aging and cognitive decline, when a person’s being slowly fades from within, leaving something hollow inside a shell? Perhaps the Citadel is all these things.

As I stand in the center of the courtyard wondering, still in awe of the setting, I hear the sound of a camera shutter. Zucchi waves from inside a window, then closes it. Moments later, another opens a few feet away. A game of “Where’s Cino?” unfolds in this tranquil inner sanctum, revealing the architect’s obsessive focus on documenting the



THE ROOFLINE rises and falls like the Alps in the distance (above). The interiors are muted and simple (opposite, bottom) but a reception area (opposite, top) is skylit and includes sinuous furniture.

qualities of his work—and perhaps some of his eccentricities too. (His office in Milan abounds in assorted trinkets and objects that he has collected over the years, from drafting tools to anatomical models.) "I want to capture the moments," he quips, later acknowledging the spontaneous quality of his photographs. Those "moments"—captivating scenes, quirky details, extraordinary sight lines—are exactly what make the Citadel, caught in an identity crisis, so intriguing.

There is also an opportunity, says Franco Benuzzi, who leads the foundation that manages the Welcoming Citadel, to expand the hospital campus further and build more housing to accommodate residents with an even greater range of needs. The idea is still nascent but equally ripe with potential—and appeal. Who wouldn't want to settle in this little Alpine oasis? There's little reason to leave. ■

Credits

ARCHITECTS: Cino Zucchi Architetti — Cino Zucchi, Andrea Viganò, Paolo Moretto, project leaders; Andrea Balestrieri, Chiara Aliverti, Stefano Goffi, Roberto Zuccotti, design supervrision; Omar de Ciuceis, Marco Campolongo, Katerzyna Sobus, Adriana Adiletta, architects
Euro Project Engineering Consulting — Guido Rossini, project leader; Roberto Zuccotti, design supervision

ENGINEER: Euro Project Engineering Consulting — Guido Rossini (project manager); Antonio Bramante (construction supervision); PierLuigi Marchesi (m/e/p), Giuseppe Garatti (safety); Arturo Busetto (structural, construction supervision)

INTERIOR DESIGN: Bruno Moratelli; Cino Zucchi Architetti (reception)

GENERAL CONTRACTOR: Costruzioni Dallapè

CLIENT: Azienda Pubblica dei Servizi alla Persona "Città di Riva"

SIZE: 74,830 square feet

COST: $10.3 million

COMPLETION DATE: September 2024

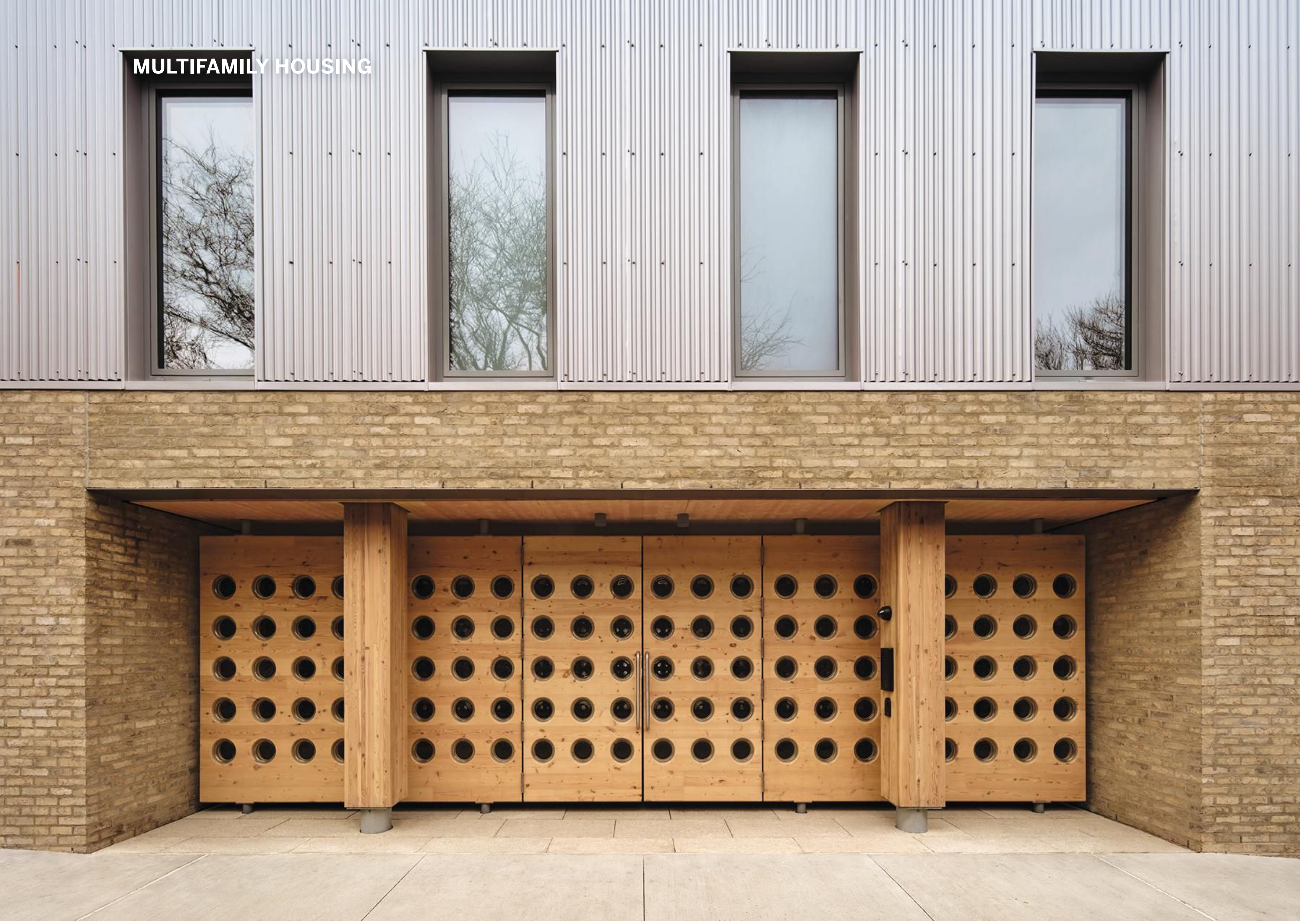
Sources

CLADDING: Roverplastik (metal panels); Sto (plaster); Florim (ceramic panels); Unimetal (roof panels); Inocram (engineered wood)

WINDOWS: Gastaldello, Festi

DOORS: Fundermax

LIGHTING: Disano, Filippi, Cariboni



FRAME 122 | BROOKLYN, NEW YORK | BRENT BUCK ARCHITECTS

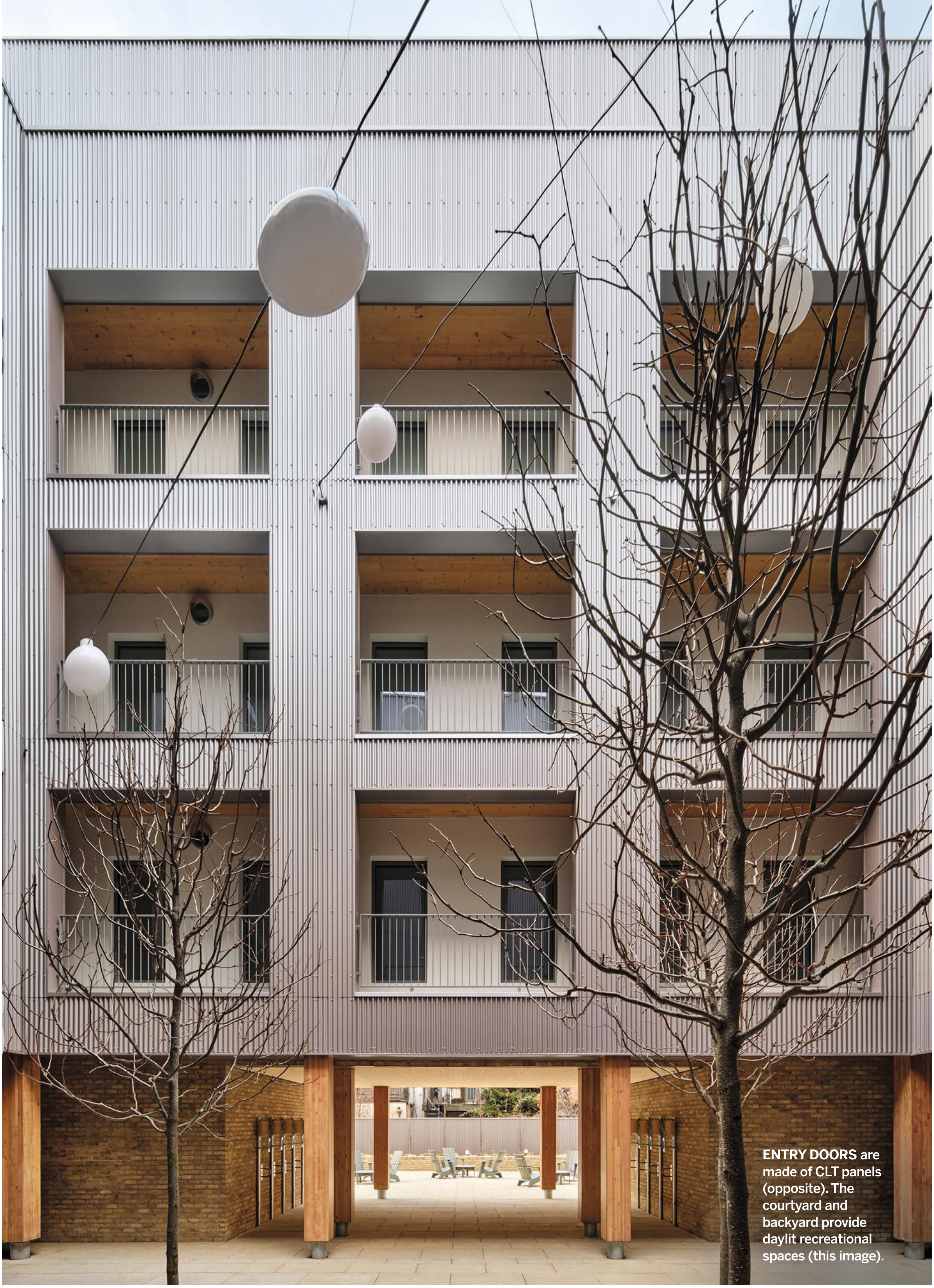
Holding Court

A mass-timber apartment building in Brooklyn wraps itself around a courtyard with character.

BY MATTHEW MARANI
PHOTOGRAPHY BY CHRISTOPHER STURMAN

THE DOUBLE-LOADED corridor is a ubiquitous and rightly derided feature of contemporary housing. Its layout, where residential units line both sides of long hallways, deprives common spaces of daylight, natural ventilation, and, some would say, a sense of community. But adherence to this stultifying building configuration need not be the norm. Frame 122, a five-story mass-timber residential apartment house in Brooklyn's Clinton Hill neighborhood, designed by local practice Brent Buck Architects, stands in contrast to this prevailing typology, with a parklike courtyard from which residents can access their apartments.

The nearly 31,000-square-foot rental building faces east and is located on the site of a demolished brick-fronted garage. That context, and the neighborhood's abundant brownstones and nearby industrial facilities, like the Brooklyn Navy Yard, informed the project's cladding, which comprises roughly mortared and variegated brick on the ground floor that transitions to corrugated aluminum sheets and highly regimented rectangular glazing above. The entrance is at the center of the main elevation, where a pair of exposed glulam beams frame the building's cross-laminated timber (CLT) gateway, which is punctuated by a grid of playful porthole-like windows.



ENTRY DOORS are made of CLT panels (opposite). The courtyard and backyard provide daylit recreational spaces (this image).

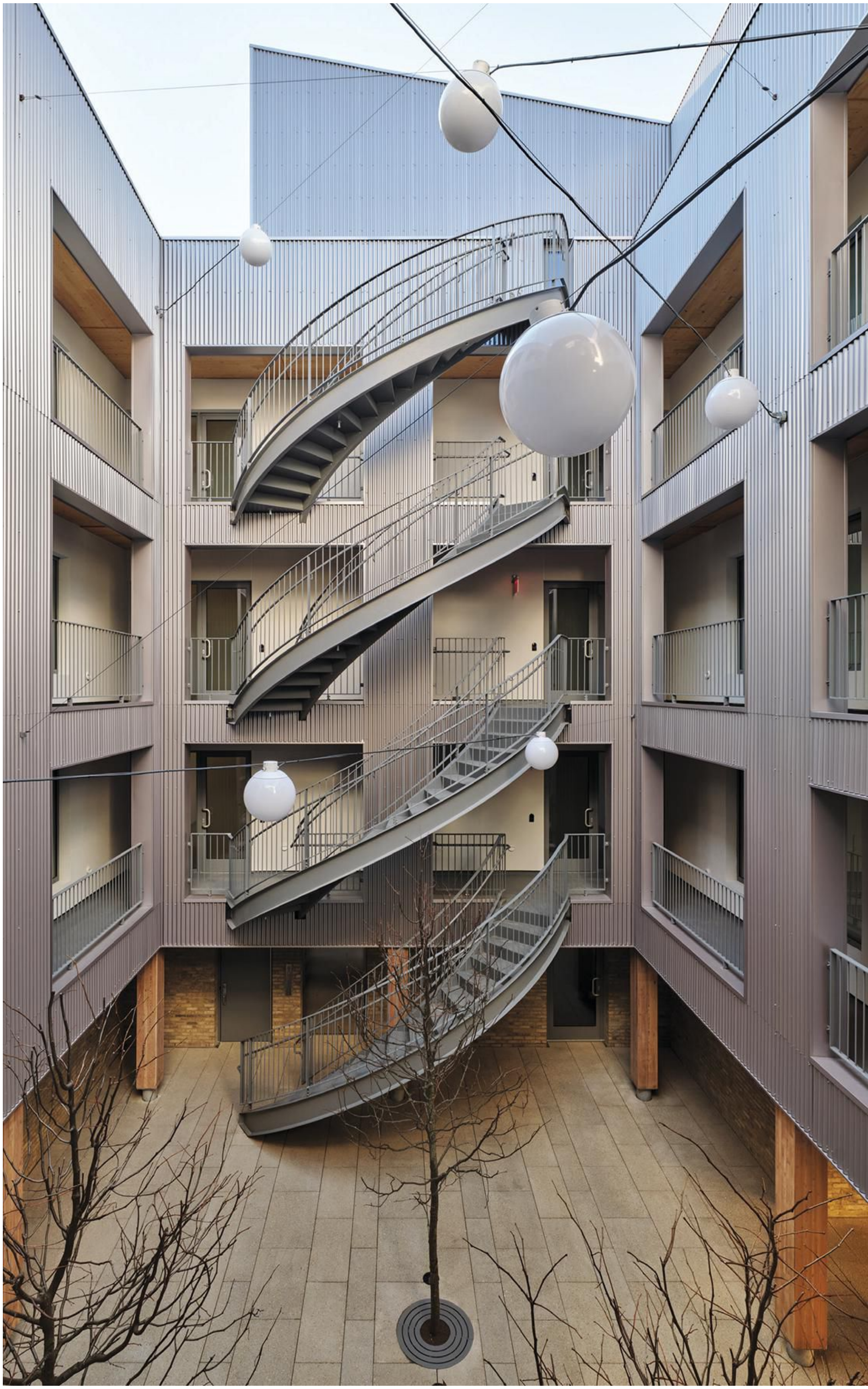
FRAME 122 is studded with rectangular window openings (above). A partially open vestibule welcomes tenants (left). The spiral stairwells deliver residents to circulatory walkways (opposite).

The gateway leads to an open-air vestibule—a zoning trick that deducted buildable area from the ground floor, freeing up valuable square footage for the residential units—which, in a few strides, opens to the building's granite-paved courtyard. It is flanked to the north and south by a pair of steel spiral staircases that lead to exterior walkways and apartments. Together, the staircases and walkways serve as Frame 122's primary circulatory route and double as means of qualified fire-safety egress; strands of bulbous lamps crisscrossing the courtyard fulfill their lighting requirements. The open space afforded by the courtyard is further supplemented by a backyard at the rear western portion of the building parcel.

"This arrangement gave us the ability to turn what would typically be an internal stairwell within a concrete core into a courtyard amenity with decorative stairs," says principal Brent Buck of Frame 122, which is the largest project his firm has undertaken and its first foray into multifamily housing (the development company's cofounders had previously hired Buck for their apartment renovation). "It is also key to providing additional sunlight through translucent windows, cross ventilation to the residential units, and a moment of calm from our hectic New York City lives."

There are four apartments per floor, excluding the ground level, where there is just one unit, with a private backyard, and the penthouse level, where there are two with rooftop terraces. Each of the rentable units measures at least 1,100 square feet and contain two to three bedrooms. According to Buck, it was important to the developer that the apartments be of sufficient size for families. The apartments between the second and fourth floors follow an L-shaped layout, and they are coupled together by elevator-accessed foyers, which provide a secondary point of entry to the units.

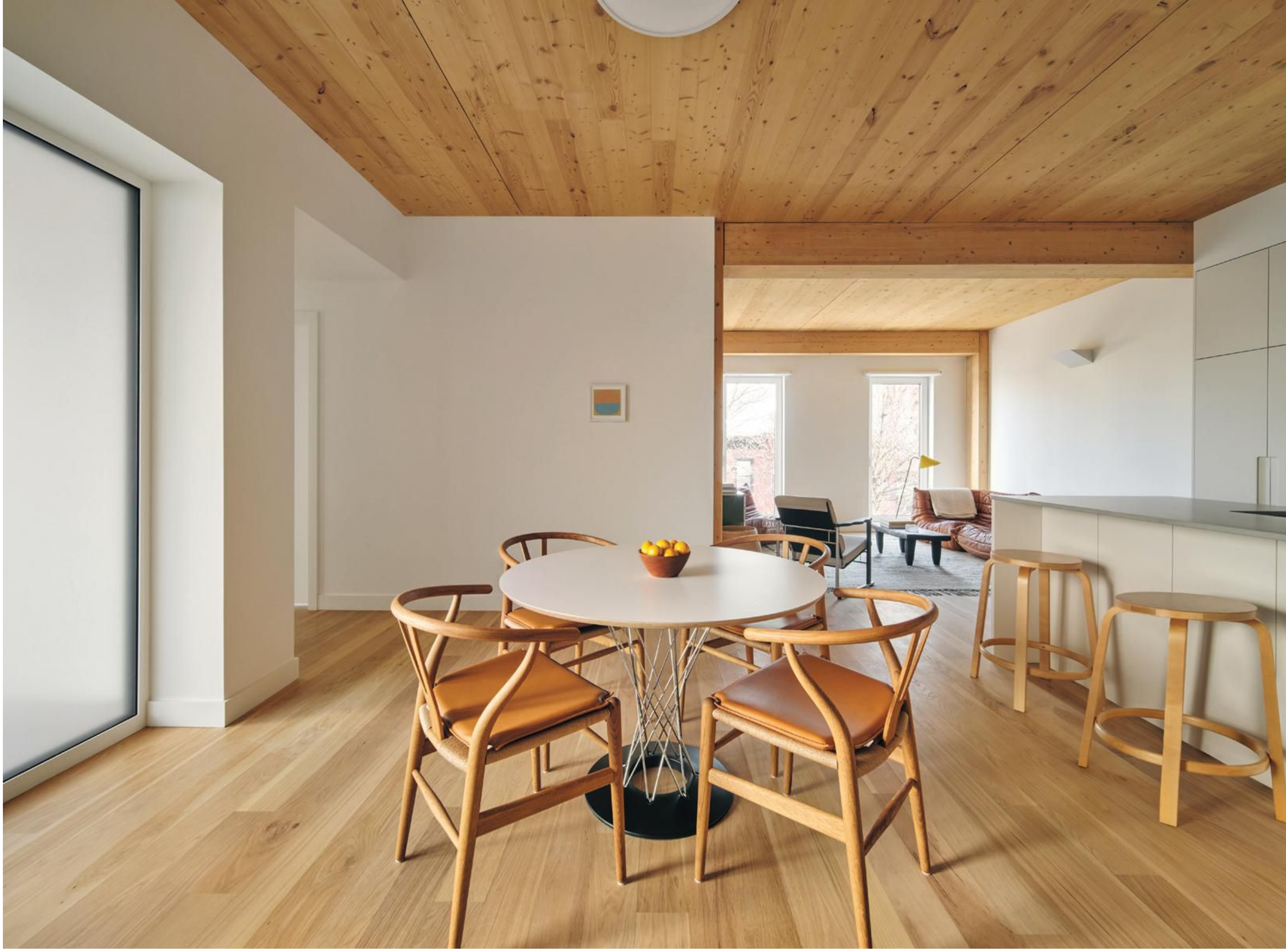
Inside, the mass-timber structural system is left exposed. Glulam columns, spaced nearly 14 feet apart, frame the minimally detailed interiors and are complemented by the exposed grain of five-ply CLT panels overhead—with standard dimensions of 26 feet by 10 feet—and white oak flooring underfoot. The kitchens and bathrooms are daylit from either street- or courtyard-facing windows; and their white backsplash and shower tiles are arranged in an eye-catching pattern of random lengths (it also happens that this forgiving arrangement simplified their installation). Notably, the apartments



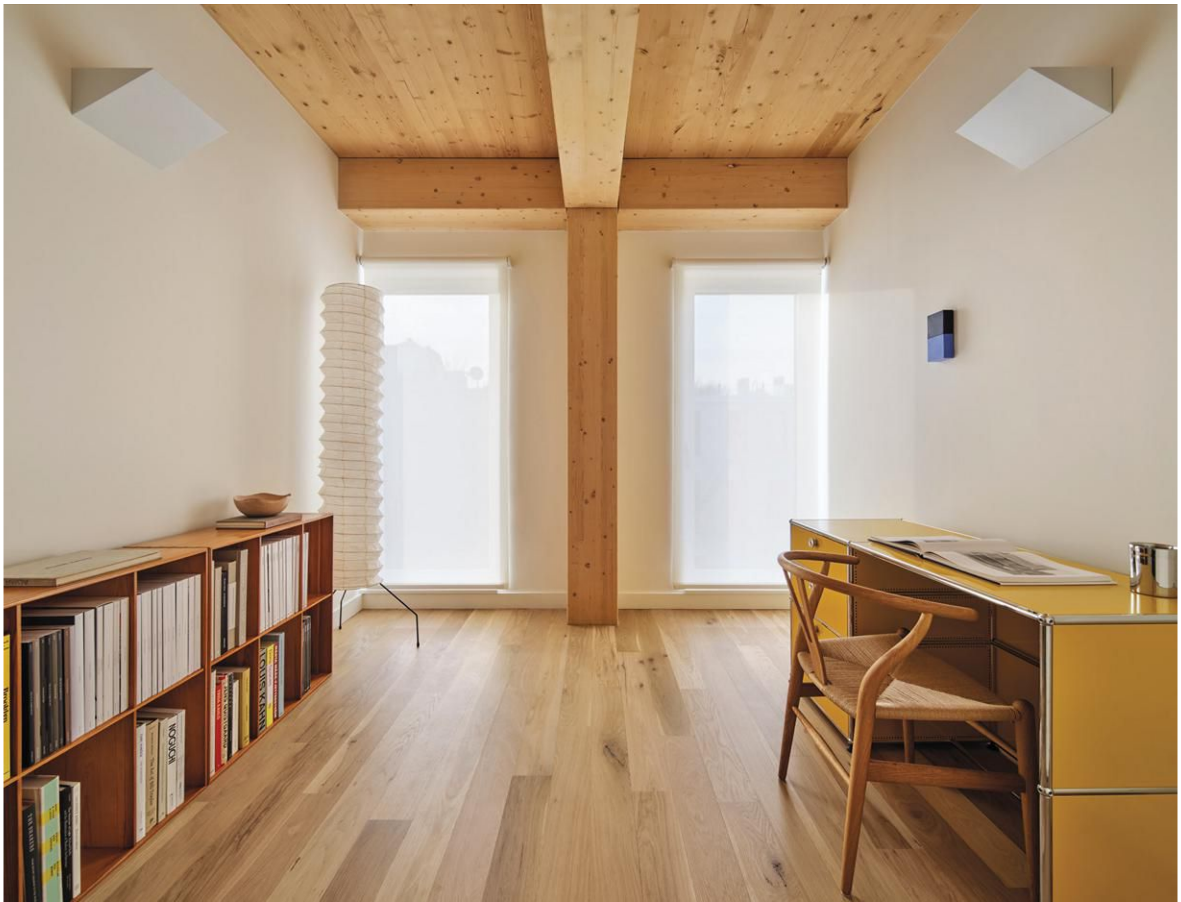
are serenely quiet, owing to the triple-glazed windows and barely audible, white noise–like energy-recovery ventilators circulating fresh air. Once the tenants start to move in this spring, the din of multifamily living will be further mitigated by acoustic insulation sandwiched between the wood flooring and the CLT panels.

Like other structures realized following New York's passage of Local Law 154, Frame 122 is fully electrified. At the rooftop, a 16.1 kW photovoltaic array will, during daytime hours, offset much of the building's energy load. Below grade, in the garage, the residents' parking spots include bidirectional EV-charging stations—meaning that, if the power goes out, electric vehicles can serve as backup generators for a limited period.

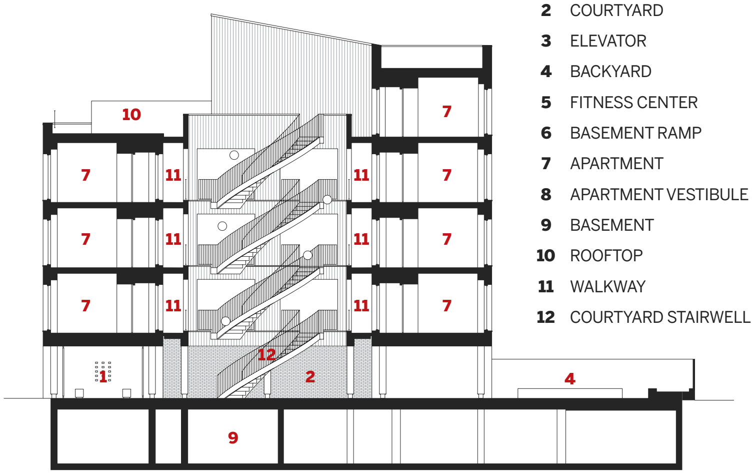
Frame 122 joins a small but growing group of mass-timber buildings in New York. The developer, Frame Home, completed another such structure, Frame 283, two years ago,



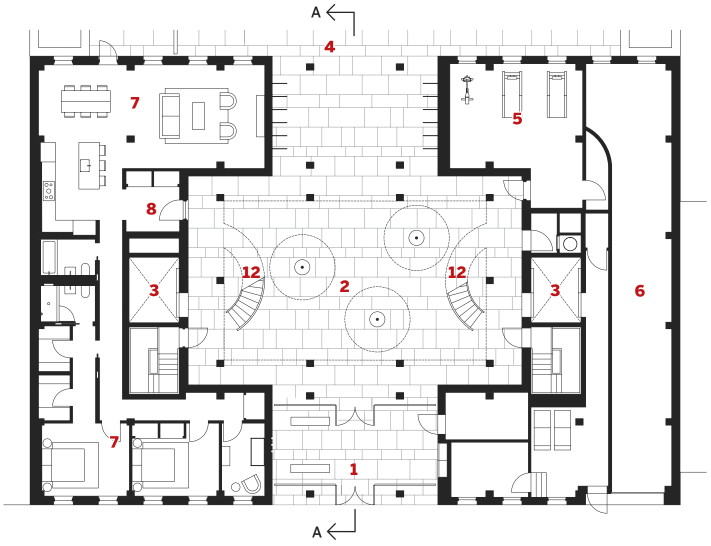
THE UNITS are minimally detailed (opposite, left). Each bathroom has window access (opposite, right). The mass-timber structure is left visible (opposite, bottom, and above). Acoustical insulation is located below the wood flooring (right).



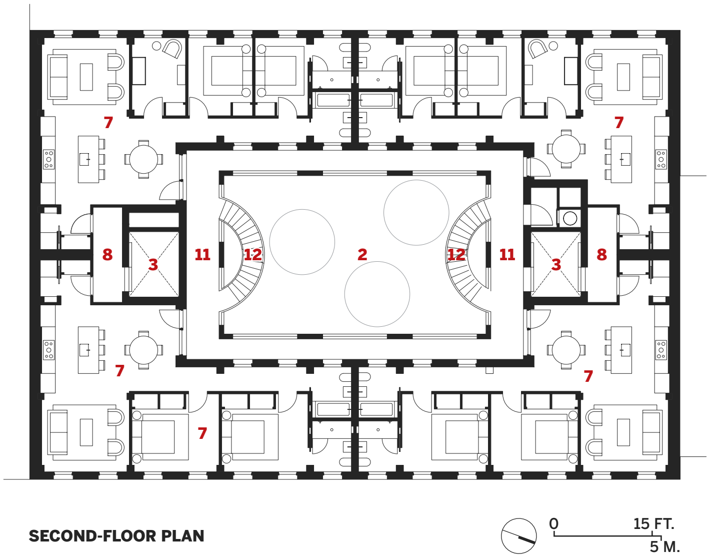
1	ENTRANCE
2	COURTYARD
3	ELEVATOR
4	BACKYARD
5	FITNESS CENTER
6	BASEMENT RAMP
7	APARTMENT
8	APARTMENT VESTIBULE
9	BASEMENT
10	ROOFTOP
11	WALKWAY
12	COURTYARD STAIRWELL



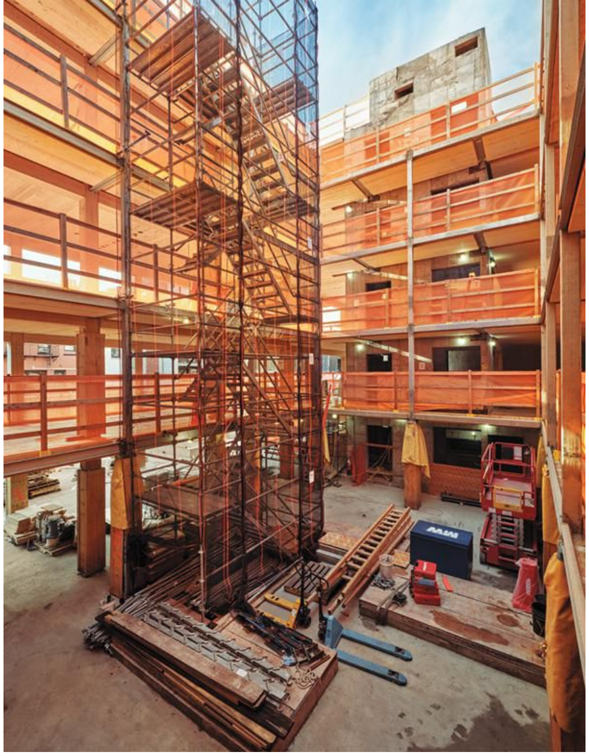
SECTION A - A



GROUND-FLOOR PLAN



SECOND-FLOOR PLAN



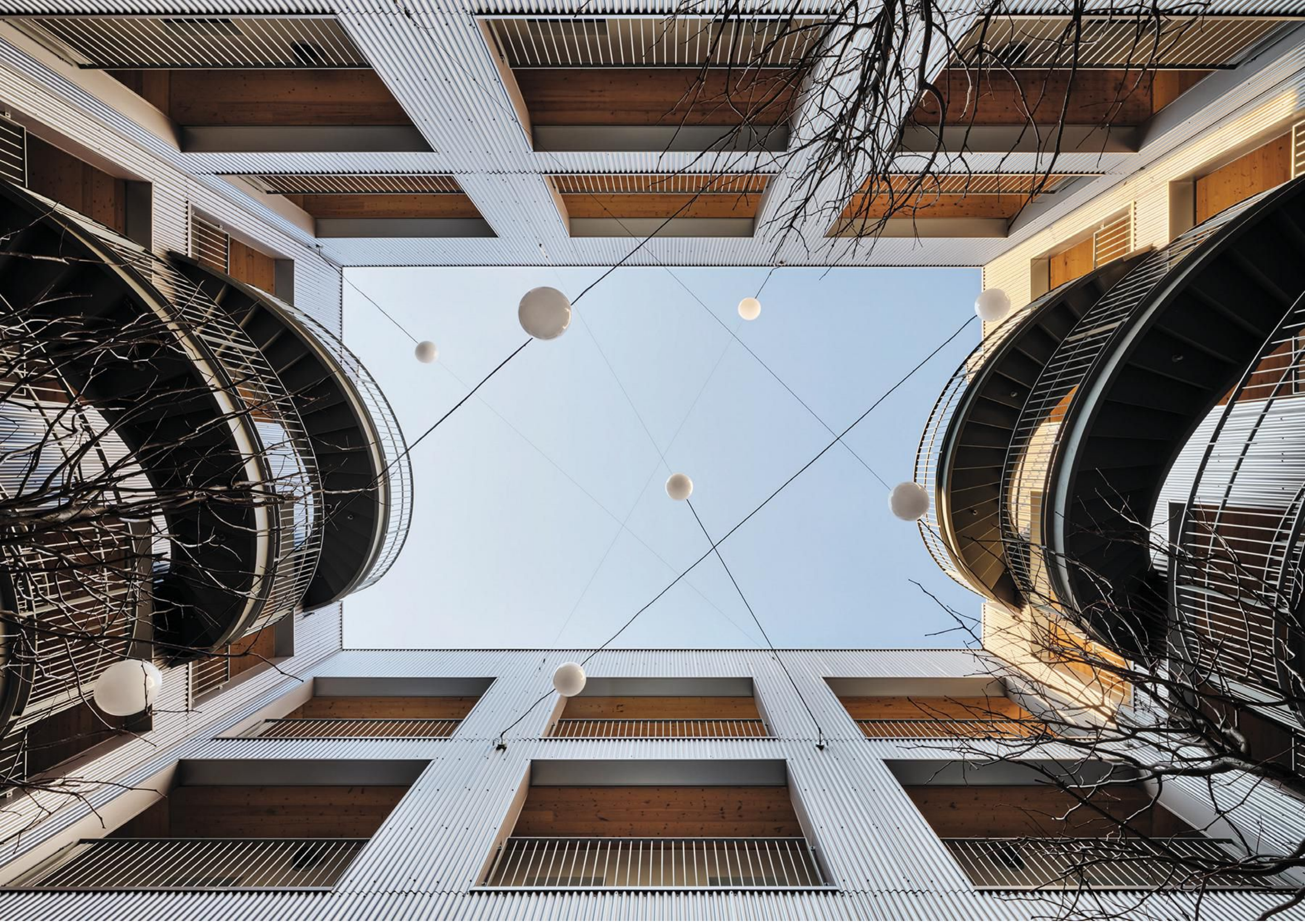
THE MASS-TIMBER structural system includes glulam posts and beams, and CLT floor panels (above). The spiral stairwells are located on the north and south sides of the courtyard (opposite, top). Frame 122 shown in context (opposite, bottom).

which was the first cross-laminated building in the city. Designed well before the local adoption, in 2022, of an updated code that permitted mass timber's use for structures up to 85 feet tall, Frame 283 required extensive back-and-forth negotiations with the Department of Buildings to receive the required permits.

At this building, on the other hand, the design team and the developer sensed the winds of change and took a gamble, breaking ground and demolishing the garage months before the approval of the updated building code. The risk paid off. In December 2022, with shop drawings prepared in coordination with an Ontario-based mass-timber fabricator, the developer gave production the go-ahead, making the project the first CLT structure completed through the revised building code. Glulam columns and beams, as well as cross-laminated floor panels, began arriving on-site in July 2023, where they were installed at a steady clip, averaging a new floor every week and a half. Although the design team wanted to use CLT for the elevator cores, they were ultimately impelled by the Department of Buildings to use standard poured-in-place concrete.

"Mass timber is certainly becoming more prevalent, and it was exciting to utilize the material in New York," notes Buck. "I hope that this project shows people that it is not only possible to use, but that it is resilient and often looks great too."

The firm, which currently numbers six (including Buck), will continue to work with timber, albeit in different forms and scales. The team is designing The Hudson Company's new campus in Dutchess County, New York, which will host a lumber mill and gallery, as well as an off-grid mass-timber house, which will utilize solar power and geothermal wells. If they are anything like Frame 122, these projects portend great things for Buck's budding practice. ■



Credits

ARCHITECT: Brent Buck Architects — Brent Buck, principal; Sarp Arditi, project architect; Joanna Ptak, staff

ENGINEERS: Murray Engineering (structural); ANZ Consulting Engineers (m/e/p, sprinkler); Ancora Engineering (excavation)

CONSULTANTS: Frank Seta & Associates (envelope)

GENERAL CONTRACTOR: CM & Associates

CLIENT: Frame Home

SIZE: 30,725 square feet

COST: withheld

COMPLETION DATE: March 2025

Sources

MASS TIMBER: Element 5

MASONRY: The Belden Brick Company

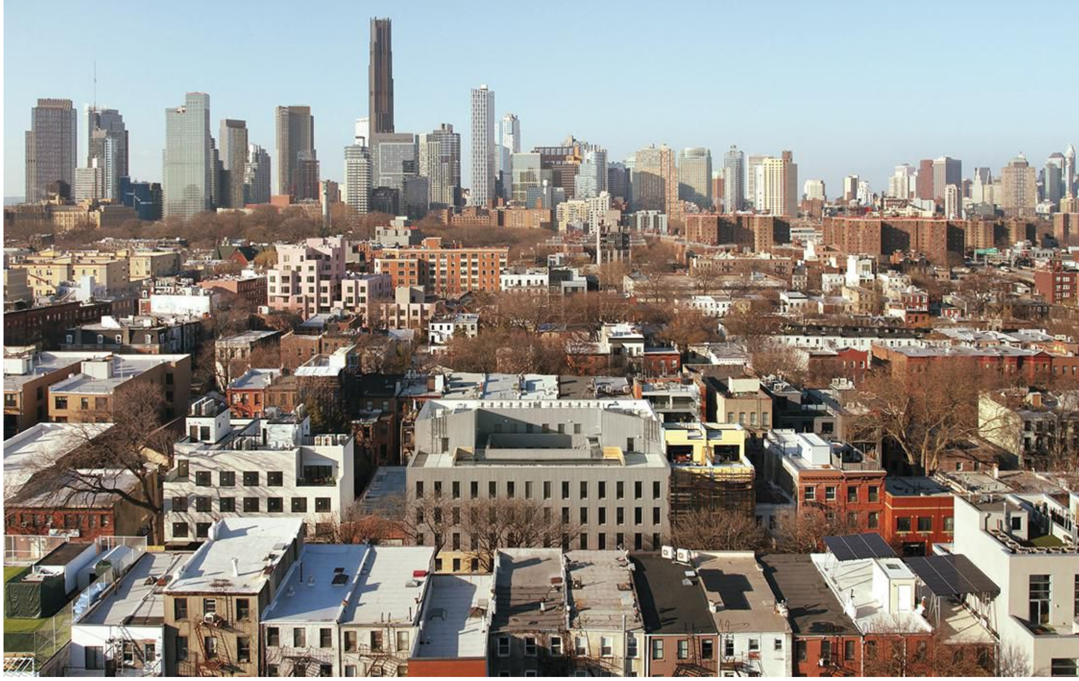
METAL PANELS: ATAS International

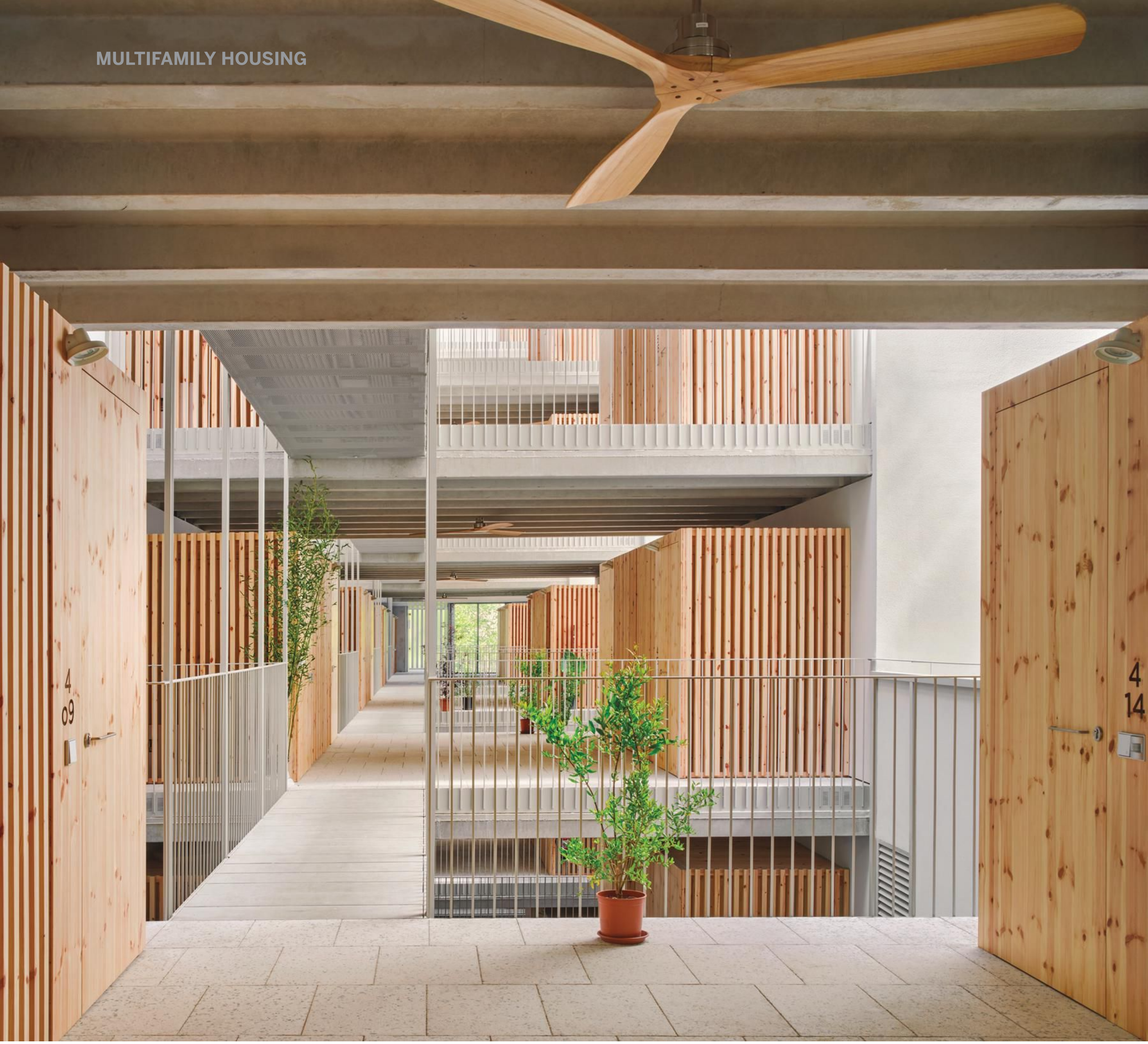
ENVELOPE: Sto (EIFS); GE (water barrier)

GLAZING: Saint-Gobain

WINDOWS: Schüco

INTERIOR FINISHES: Benjamin Moore (paints and stains); Nemo (wall tile); Mosa (floor tiles); Acoustitech (acoustic insulation)



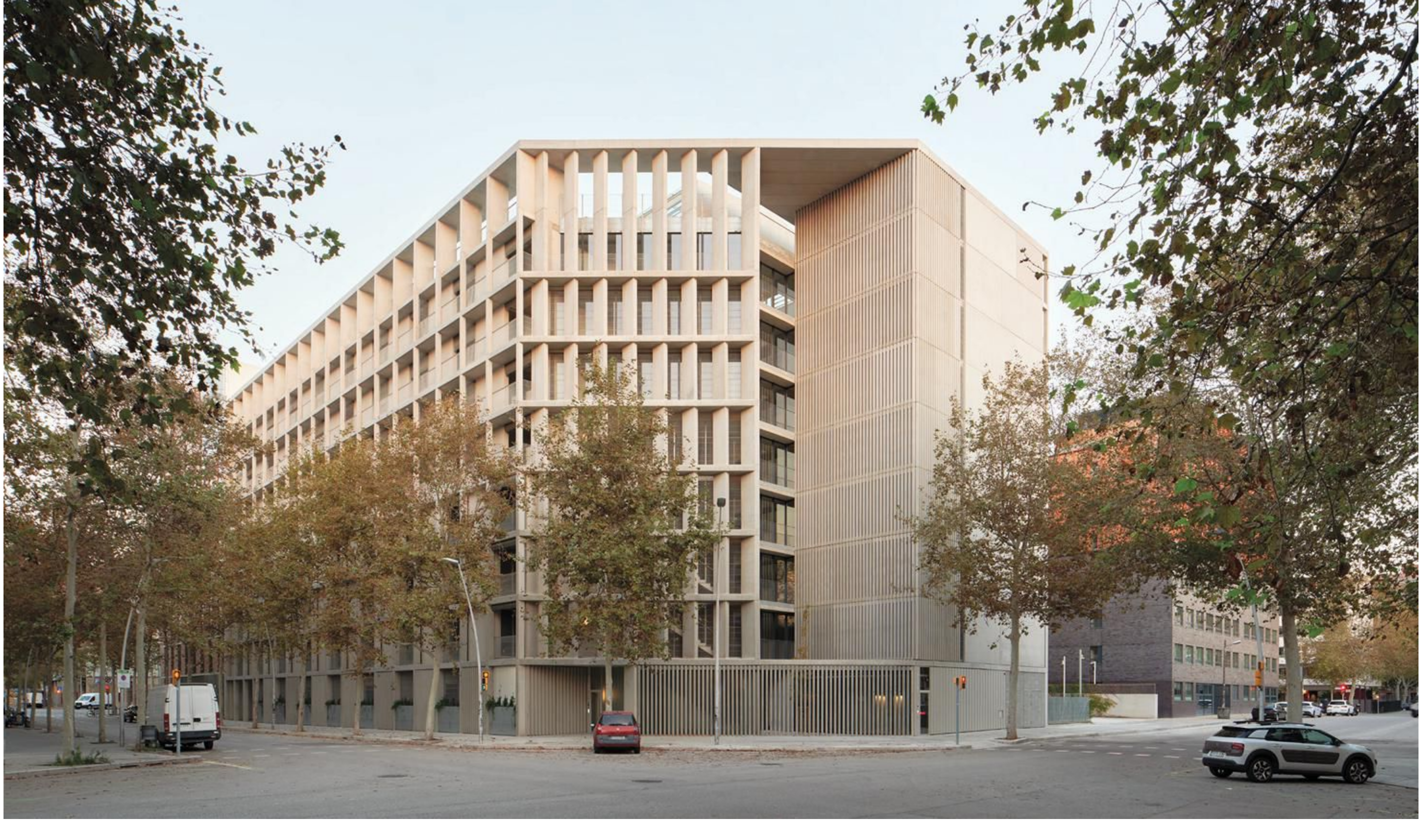


GREENH@USE | BARCELONA | PERIS+TORAL ARQUITECTES

Turning the Corner

Seasoned residential architects combine three housing types while celebrating Barcelona's chamfered grid.

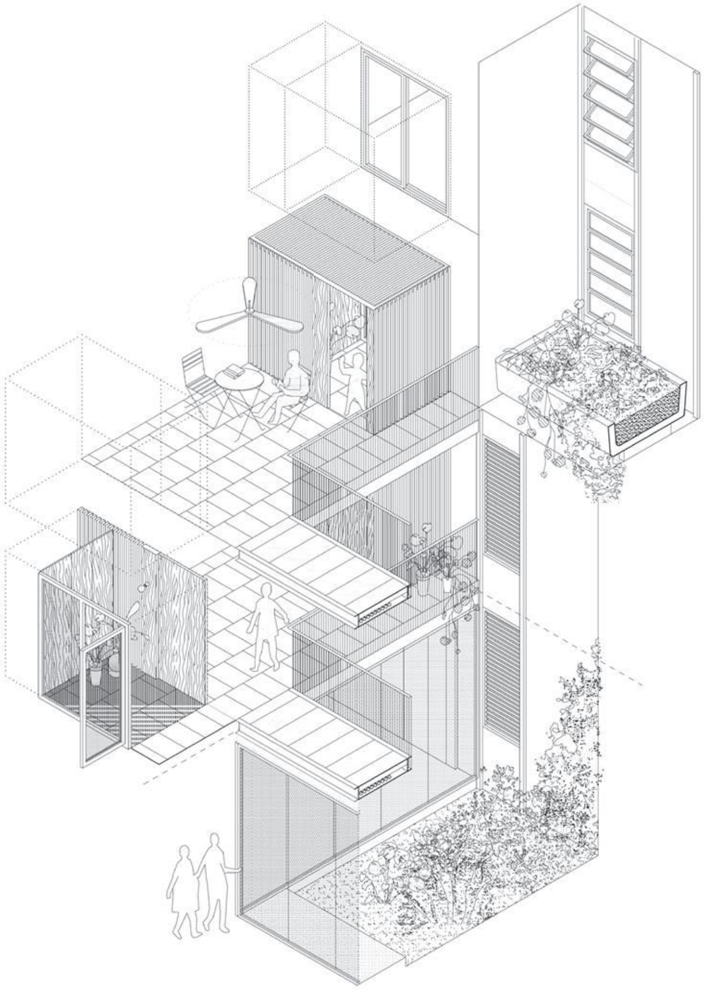
BY LEOPOLDO VILLARDI
PHOTOGRAPHY BY JOSÉ HEVIA



WHEN ARCHITECTS and urbanists think of Barcelona, the city's octagonal blocks—and architects' inventive responses to them—immediately come to mind. It was civil engineer Ildefons Cerdà who envisioned this now-famous plan, first realized in 1860 in what became the bustling Eixample district. As the Catalan capital grew and implemented more of the grid, it started to swallow up nearby villages. By the time it reached Sant Martí, in 1897, the community there felt the size of Cerdà's blocks was too big, resulting in something of a hybrid urban condition that still exists in the neighborhood today.

"This road was once called Camí Antic de Valencia, the old exit to Valencia," says architect José Toral, gesturing to a path that cuts through the block where his firm's latest housing project stands. "Many places in this area of the city have these leftover passages, which divide the blocks in half and are considered more like public streets than the private courtyards of Cerdà's plan." The apartment building his firm designed sits at a crossroads of sorts, where the palimpsest of Sant Martí and the recently developed innovation district known as 22@ begin to intersect. Rather than enclose the block, Toral and partner Marta Peris kept the historic route accessible, while also celebrating the urban feature most associated with Barcelona's identity: its chamfered city grid.

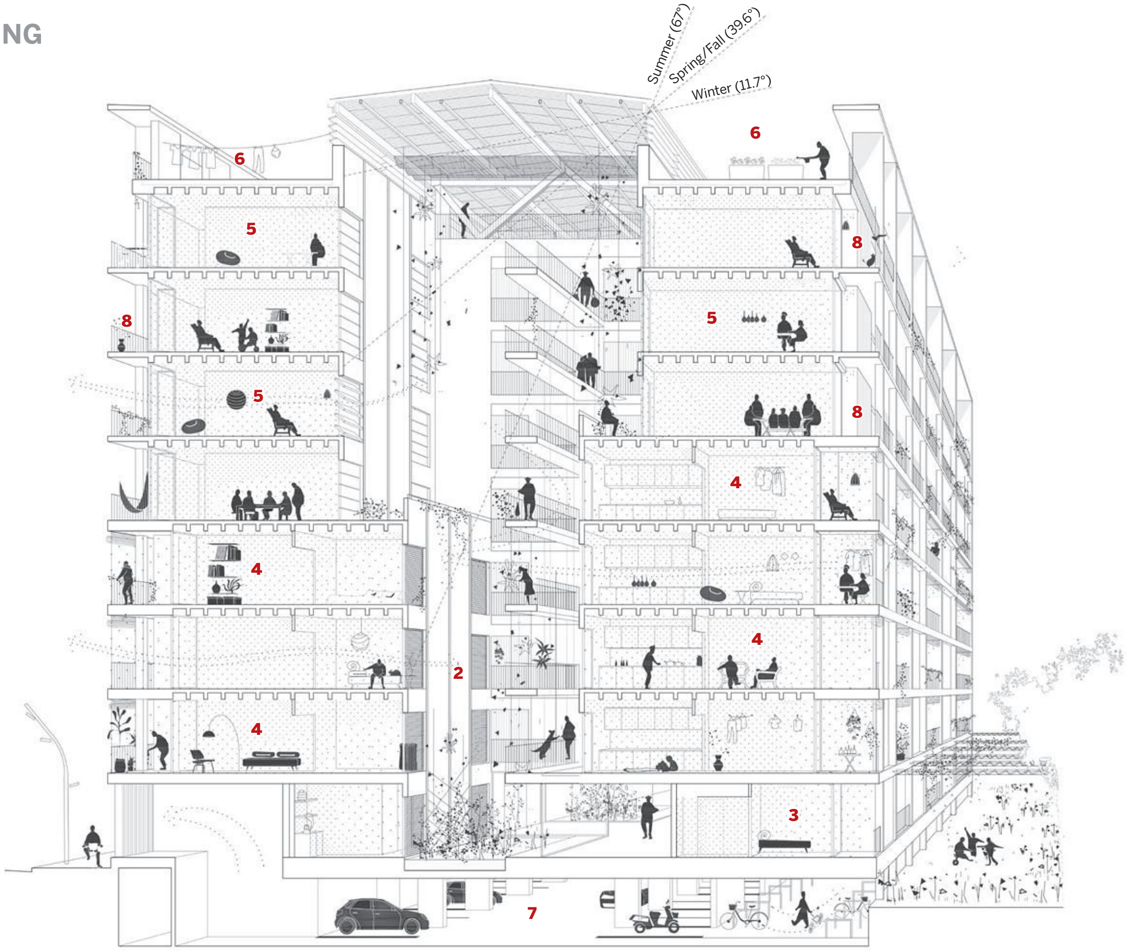
Greenh@use, an eight-story, 140-unit building, is the largest undertaking to date by the seasoned housing architects Peris+Toral, as well as the clearest expression of its founders' prowess in multifamily-residential design.



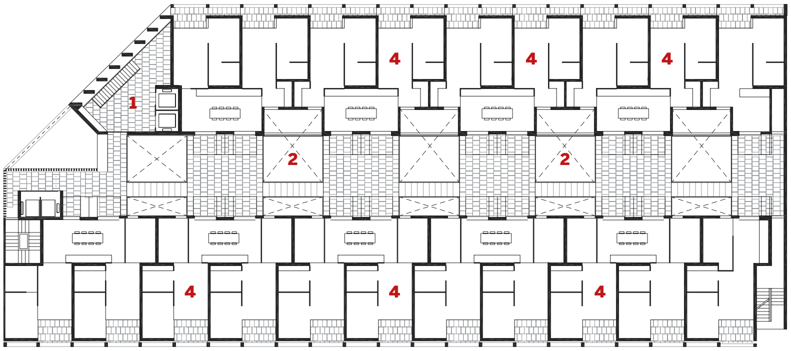
ATRIUM DETAIL

A GRIDDED facade rotates to form a brise soleil and an abstract corner condition (above). Wood porches foster neighborly conversation (left and opposite).

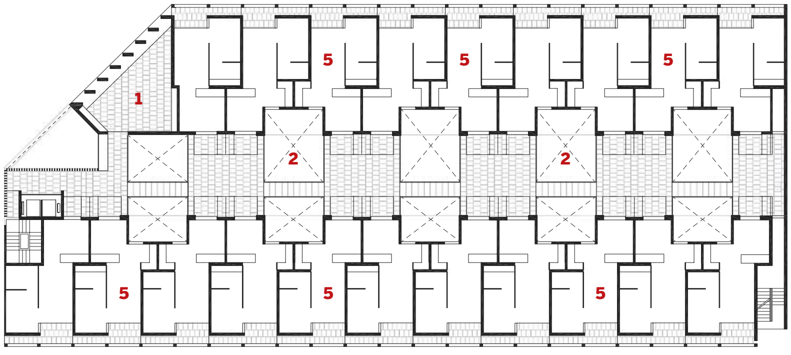
1 LOUNGE
2 ATRIUM
3 TEMPORARY UNIT
4 AFFORDABLE UNIT
5 SENIOR UNIT
6 ROOF GARDEN
7 PARKING
8 BALCONY



SECTION PERSPECTIVE



FOURTH-FLOOR PLAN

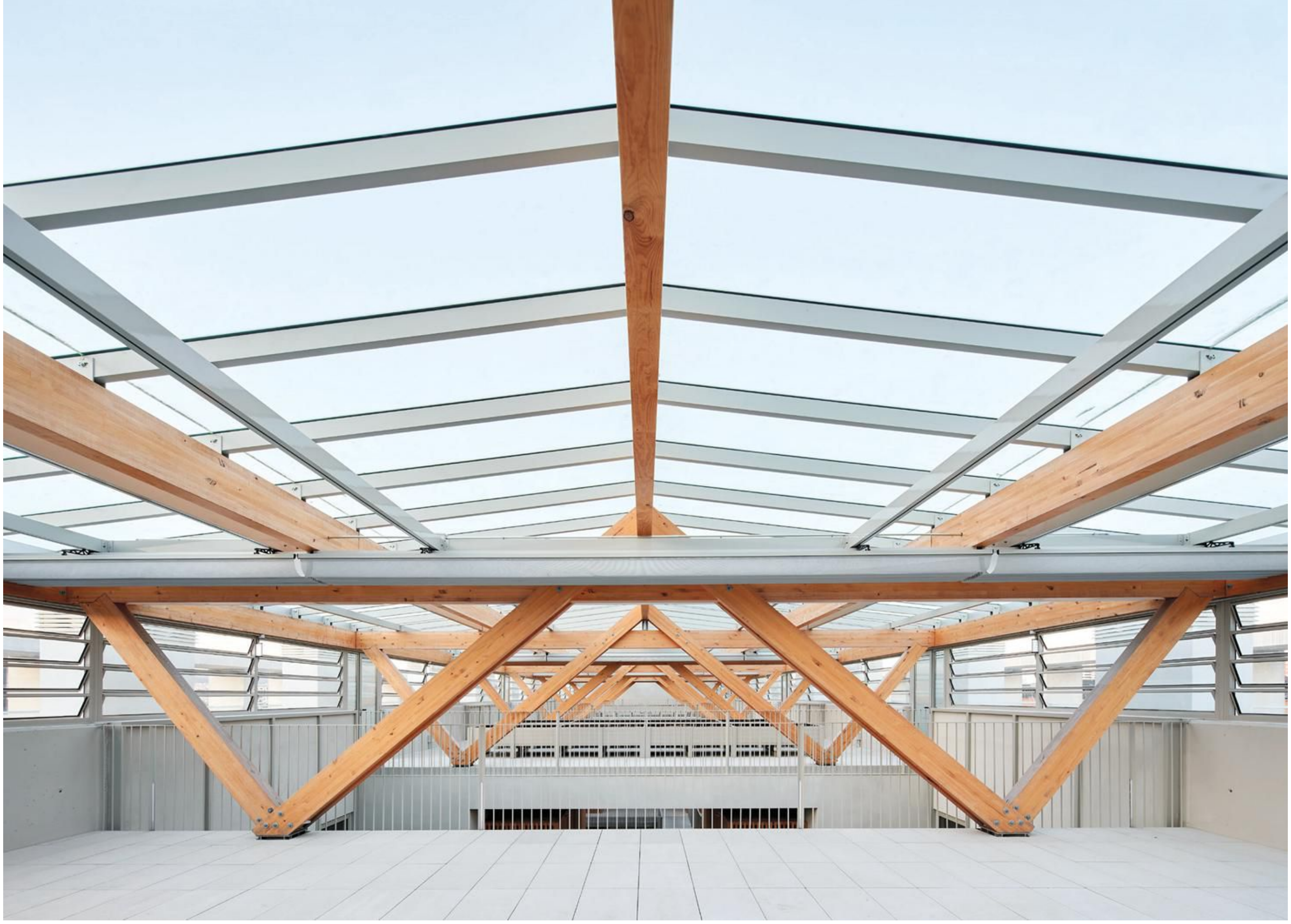


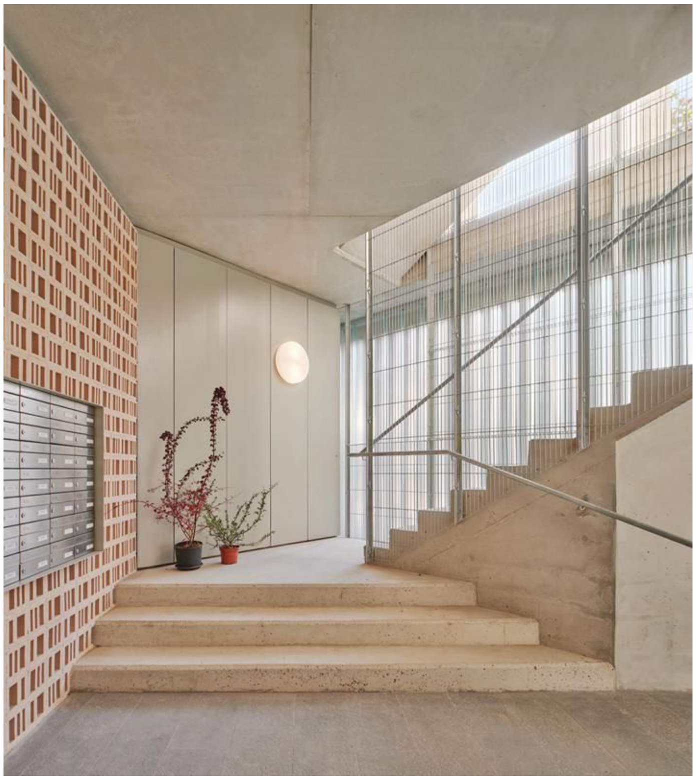
SIXTH-FLOOR PLAN

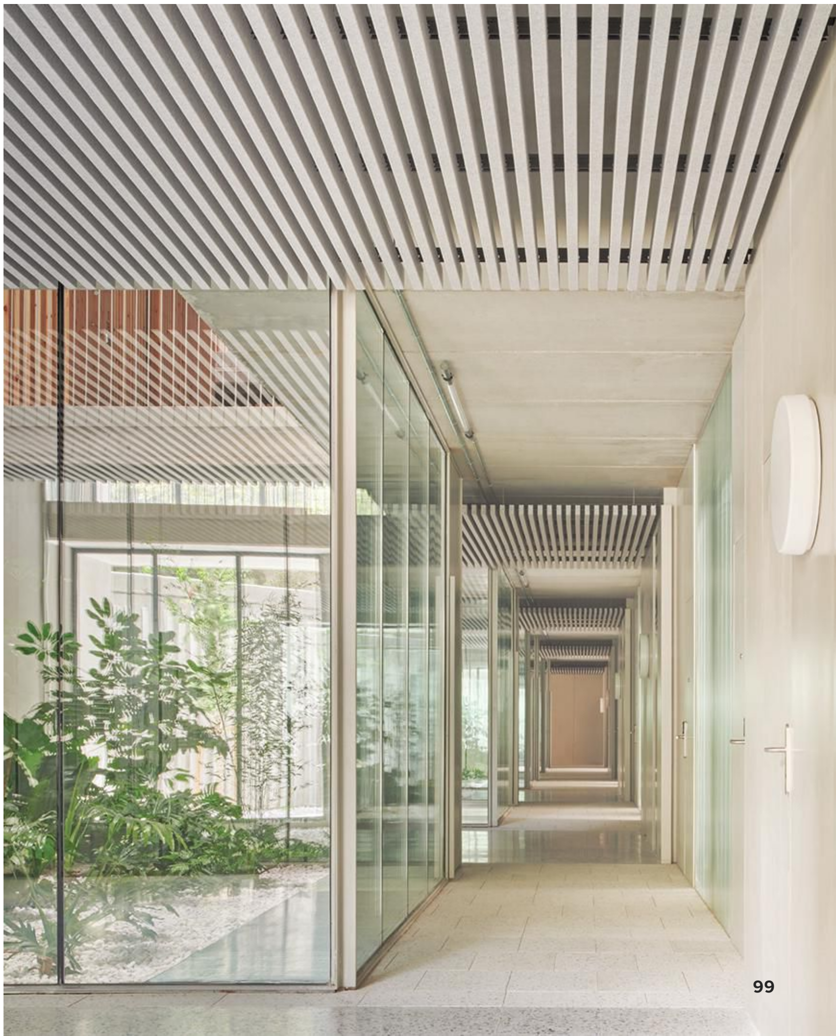
Encased within a heavy but highly reticulated facade, Greenh@use presents a unified front to passersby. This is merely a mask—in fact, the architects neatly combined three entirely separate programs, each with differing needs and unit layouts, into one building: senior housing on the uppermost three floors, affordable rentals on the middle four, and temporary accommodations for refugees and the homeless on the ground level.

The project is the result of a 2018 competition organized by the Institut Municipal de l'Habitatge i Rehabilitació de Barcelona, an agency charged with constructing housing within the city's bounds. "I think we won because we organized one building on top of the other, rather than propose three side by side," Toral muses. By doing so, they could organize every unit around a dynamic, hyper-dense atrium, doused in sunlight and, in stark contrast to the weighty *béton* exterior, filled with blond timber, muted terrazzo, and dazzlingly thin metal elements.

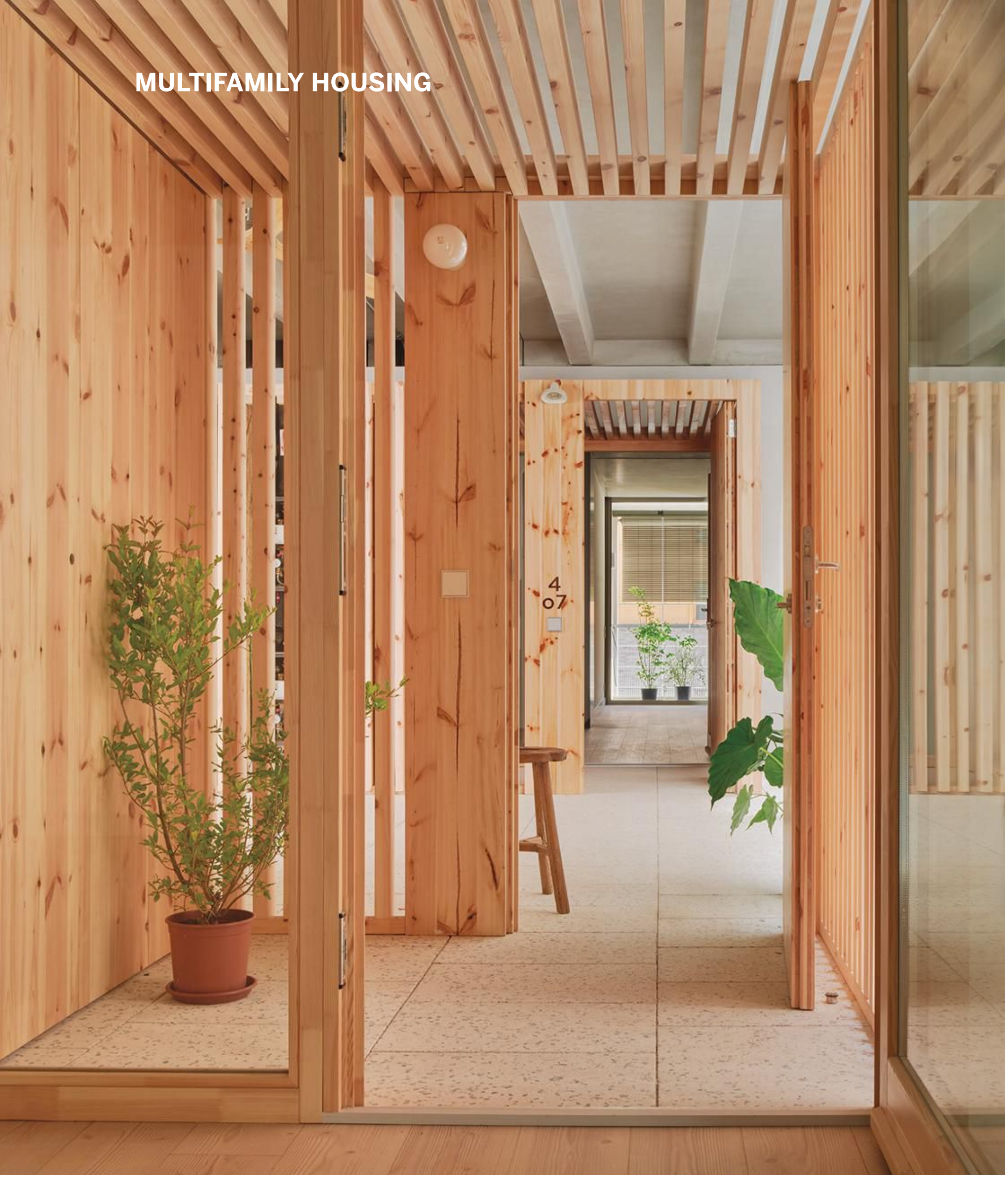
At the corner, Greenh@use's structural exoskeleton deepens and rotates, forming a westward-oriented brise soleil that is counterbalanced by a solid (but ribbed) stairwell core and a seven-story-tall void. "The chamfer is the most important part of buildings in this city, but it's also very difficult from a planning perspective," says Toral. The decision to place communal lounges here was practical as well as aesthetic,







TIMBER TRUSSES (top) support skylights above the atrium, which is planted at its base (right). Residents can enter the building at its triangular corner, where stairs and elevators are located (above).



explaining the dramatic and abstract composition facing the street. The brise soleil filters daylight through to the atrium but also frames panoramic views back toward Barcelona, with the Sagrada Família piercing the skyline in the distance.

On the ground floor, this hinge accommodates two separate lobbies—one for the rental tenants and another for the seniors—while the transitional housing, intended only for six-month stints, is accessed farther down the block. Some might bristle at this divided organization, but it positions on-site staff to best support residents and their diverse needs.

In Spain, it's estimated that about one-fifth of the population is over 65 years of age, one of the highest percentages in the world. Says Toral, "There is a frequently posted public-health advisory that quotes an elderly person saying, 'the worst part about getting old is the loneliness.'" Tackling this sense of isolation was top of mind. On the fifth floor, unit plans were configured specifically to accommodate intergenerational living. But, more significantly, each apartment is fronted by a permeable wood box that functions as a kind of porch, providing semiprivate space for residents to spend time outside their units, talk to passing neighbors, and even dry their clothes.

Taken together, the porches line a pedestrian street that is repeated on each floor—like a sliver of American suburbia, but denser, walkable, and more vertical—recalling James Wines' speculative Highrise of Homes. These elevated thoroughfares, crossing through the chasm, create a mesmerizing enfilade, where views and neighborly conversation cut across the same floor, as well as above and below. Apartments for seniors, at the topmost floors, feature fewer bedrooms and are shallower, allowing the planted atrium to widen at its upper reaches and increase the amount of daylight that trickles down.

In addition to its social purpose, the atrium serves an important thermodynamic one—it is neither heated nor air-conditioned, reducing the building's overall energy use. On a hot day in August, on a tour of the project with Toral, the space felt pleasantly warm. Automated louvers near the timber-truss-supported skylights open and close, depending on the season and weather, forming a solar chimney, a device Peris+Toral has skillfully deployed in other projects (RECORD, October 2023). In the summer, the space vents hot air and "generates airflow of about 1.5 meters (5 feet) per second," Toral explains. "Every half meter amounts to about 1 degree Celsius in thermal

THE FACADE increasingly pulls away from the building every few floors (right). The interiors feature pine and terrazzo (opposite, both).

comfort." Units can also open atrium-facing windows for cross ventilation. In the winter, warm air is retained.

The architects further reduced the project's carbon footprint by specifying precast concrete, which could be more easily molded into structurally optimized geometries (such as ribbed slabs). Once assembled on-site, discrete elements were locked together with a final in situ pour of about 2 inches. This decreased the amount of concrete needed by about 50 percent, says Toral. "But we worried about the repetitiveness of the precast facade grid." Subtleties in the design help mitigate this—while the structural exoskeleton floats in front of it, the building steps back every few floors to create deeper balconies, adding depth and shadow.

Even when constrained by a tight budget, Peris+Toral has demonstrated an aptitude for innovative and inventive housing models. Certainly Spain is not alone in having a large percentage of elderly people—many other European nations, as well as Japan and the United States, rank high. Lurking not far behind the affordability crisis is the one stemming from a shortage of housing stock that can comfortably and safely accommodate an increasingly older population. Why not look to models, like this one, that can tackle both issues at once? ■

Credits

ARCHITECT: Peris+Toral Arquitectes

ASSOCIATE ARCHITECT: L3J Tècnics Associats

ENGINEERS: Bernúz Fernández (structural); Societat Orgànica (environmental)

CONSULTANTS: Joan March i Raurell (survey); Àurea Acústica (acoustics)

GENERAL CONTRACTOR: CALAF

CLIENT: Institut Municipal de l'Habitatge i Rehabilitació de Barcelona

SIZE: 165,520 square feet

COST: $20.49 million

COMPLETION DATE: February 2024

Sources

CLADDING: Placo (masonry); Prefabricats Arumi (precast concrete); Sto (EIFS)

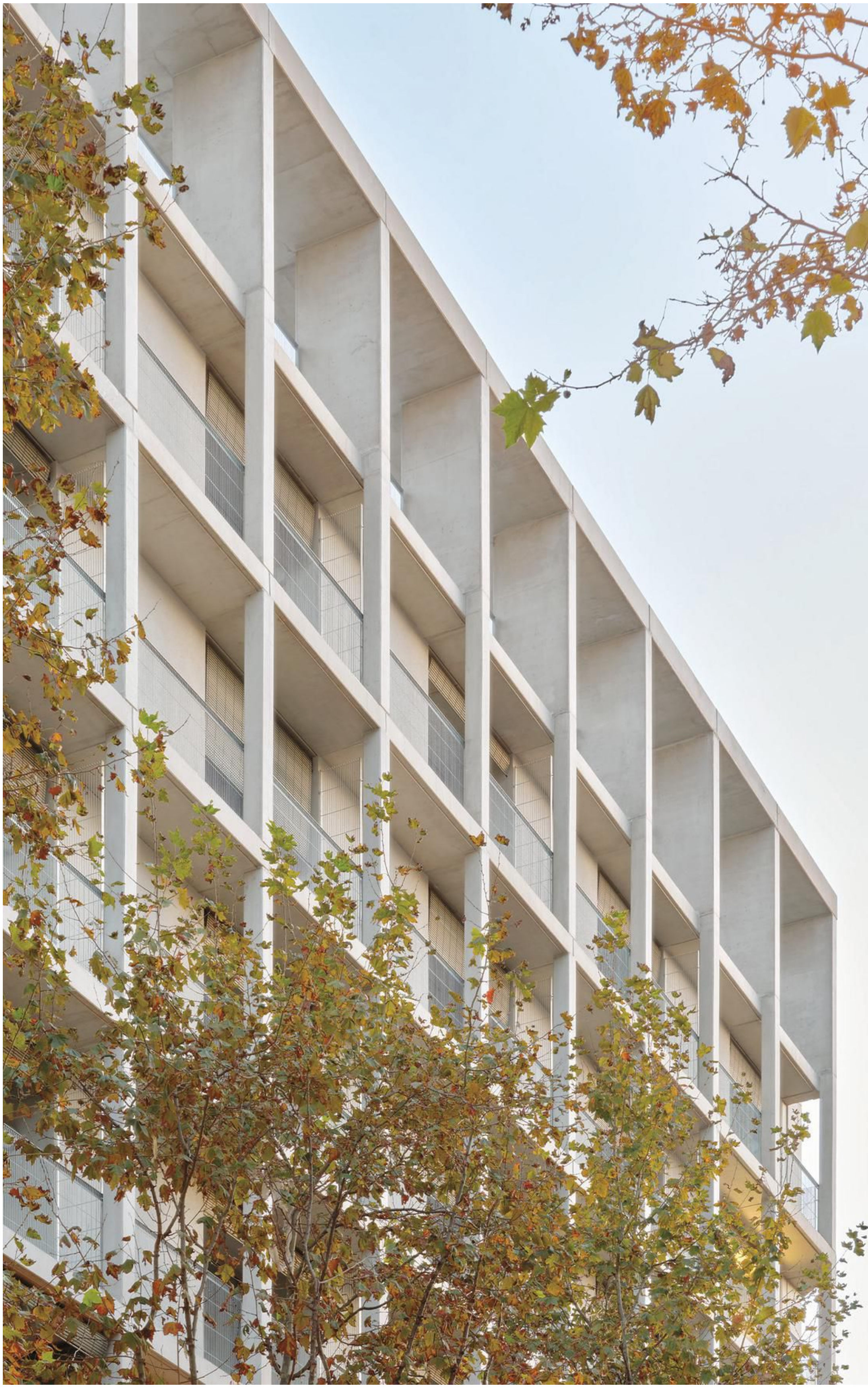
ROOFING: Iraco (elastomeric)

WINDOWS: Carinbisa, Cortizo

GLAZING: UGlass Lamberts

DOORS: Norma, Andreu

INTERIOR FINISHES: Tarkett (laminate); JNF (hardware); Hunter Douglas (acoustical ceilings)

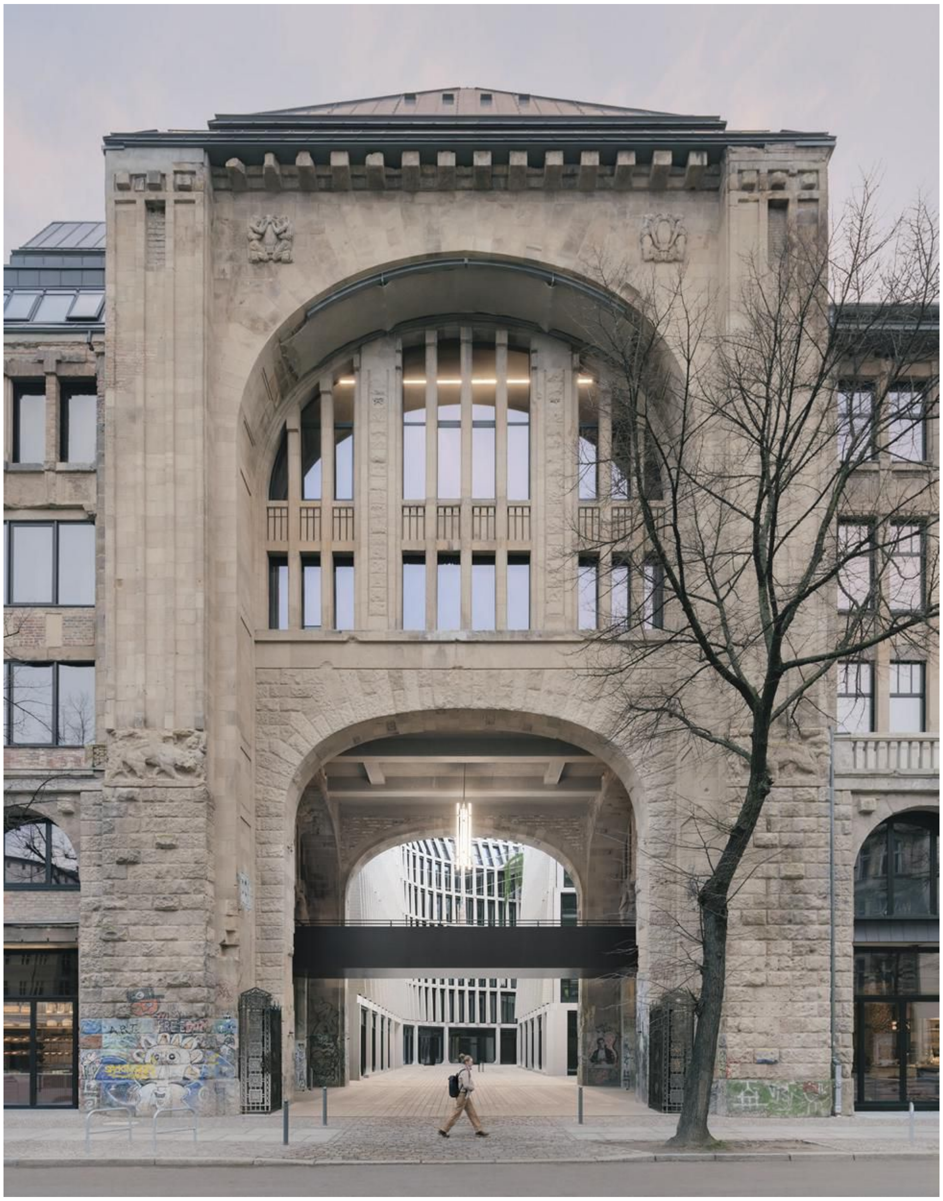


AM TACHELES | BERLIN | HERZOG & DE MEURON

Past is Prologue

Within the charged context of a former artists' squat, a team of architects stitch together the old and the new in an expansive mixed-use complex.

BY NATHAN EDDY
PHOTOGRAPHY BY NINO TUGUSHI



"HOW LONG IS NOW"—until 2019, this rhetorical message was painted in black block lettering five stories tall across the eastern wall of Tacheles, a high-end *fin de siècle* department store later turned countercultural icon of post-Wall Berlin.

Cutting through an inner-city block from bustling Friedrichstraße north to Oranienburgerstraße, the once-sprawling building was designed by architect Franz Ahrend and opened in 1908, but a few years later the store faced financial difficulties and sold at auction. A decade after that, German electrical company AEG moved in to showcase its products, only to be kicked out by the Nazis, who housed prisoners there during World War II. Later heavily bombarded, the partially destroyed building escaped complete demolition by the East German government only through lack of funds.

When the Berlin Wall fell in 1989, artists occupied the derelict building, repopulating it as they saw fit. The entrenched collective of ateliers, bars, and dance floors came to symbolize the newly opened city's freewheeling creative scene. Although Tacheles's international profile rose along with the tide of hipster tourists, Berlin authorities finally ended the party in 2012. The tract traded hands multiple times before being acquired by Aermont Capital, which initially sought to develop offices, shops, and condos, but construction stalled, and the fate of the shuttered ruin hung in limbo again.

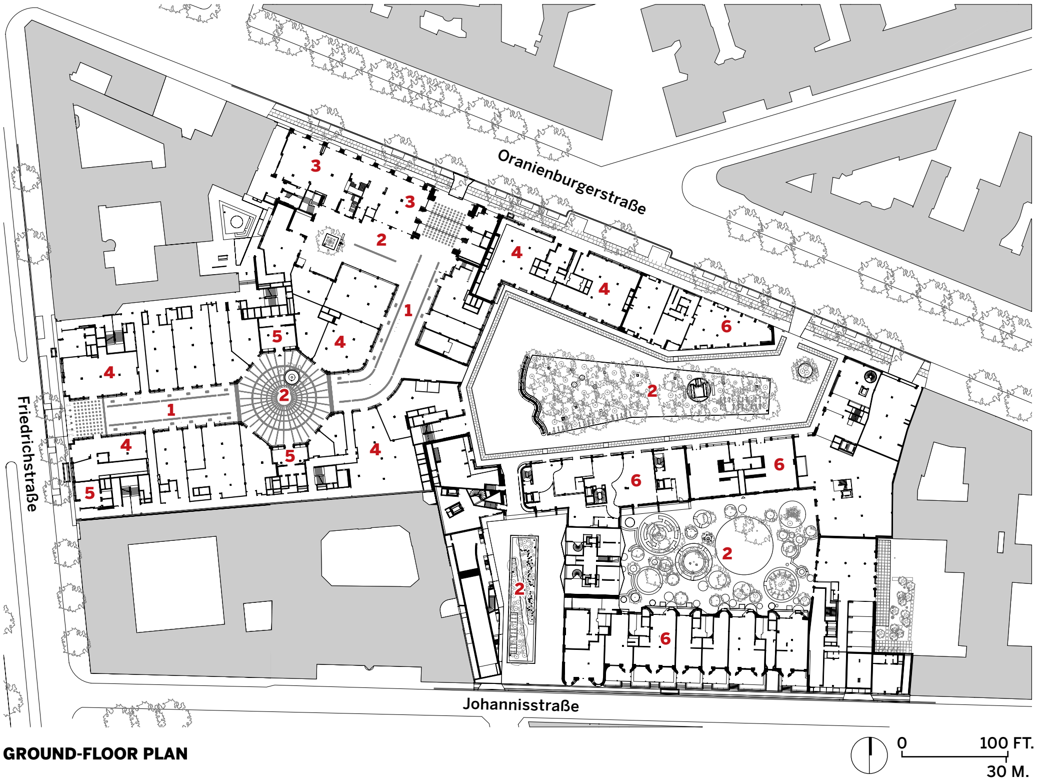
How long is now—that moody, probing statement (sans question mark) struck a plaintive tone at Tacheles's final curtain call.

THE LIMESTONE-CLAD 1908 structure (left) serves as one of the gateways to the retail-lined pedestrian passageway (opposite).

More than a decade later, a 10-building, 922,790-square-foot enclave realized by PWR Development and master-planned by Herzog & de Meuron, stands on the site, incorporating the husk of the original five-story Tacheles and using the parking lots that surrounded it for new construction. The historic structure got a polish and new windows, with riotous bursts of graffiti left preserved inside, to make space for a 60,000-square-foot outpost of Swedish museum Fotografiska plus new amenities—two cafés, a restaurant, and a rooftop bar. A steeply pitched, zinc-clad pyramid now crowns the building above its arched limestone portal, while the back-of-house areas have been left in a state of arrested decay, with exposed concrete edges and coarse brick walls.

It's a balancing act of old and new that the Basel-based firm has long explored—from its famed gutting of a disused power station to clear space for the Tate Modern in London to the process of blending Park Avenue's historic 19th-century Armory with modern architectural interventions in New York.

Senior partner Ascan Mergenthaler explains that the objective was to update the structure without scrubbing more than a century of change away completely. "It's about making the building fit for its purpose without destroying layers of the past, being too protective, or being too precious," he says. "It's not about renovation. It's about revitalization."



1 PASSAGEWAY
2 PLAZA
3 FOTOGRAFISKA
4 RETAIL
5 COMMERCIAL
6 RESIDENTIAL

GROUND-FLOOR PLAN

PHOTOGRAPHY: © STEFAN SCHILLING (TOP, RIGHT)

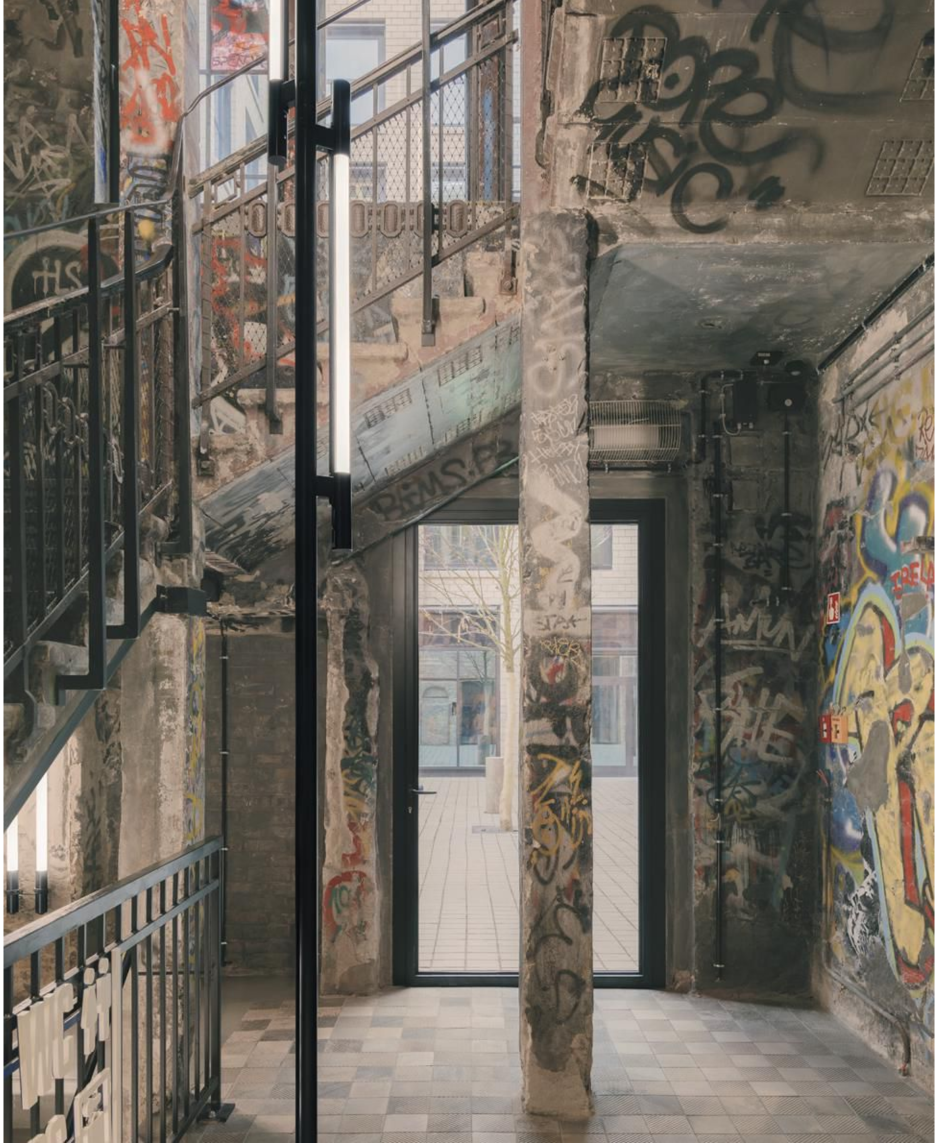
TACHELES, circa 1994 (opposite, right), was integrated into the complex (opposite, left), which includes new amenity spaces (below, right). Original graffiti were preserved (right).

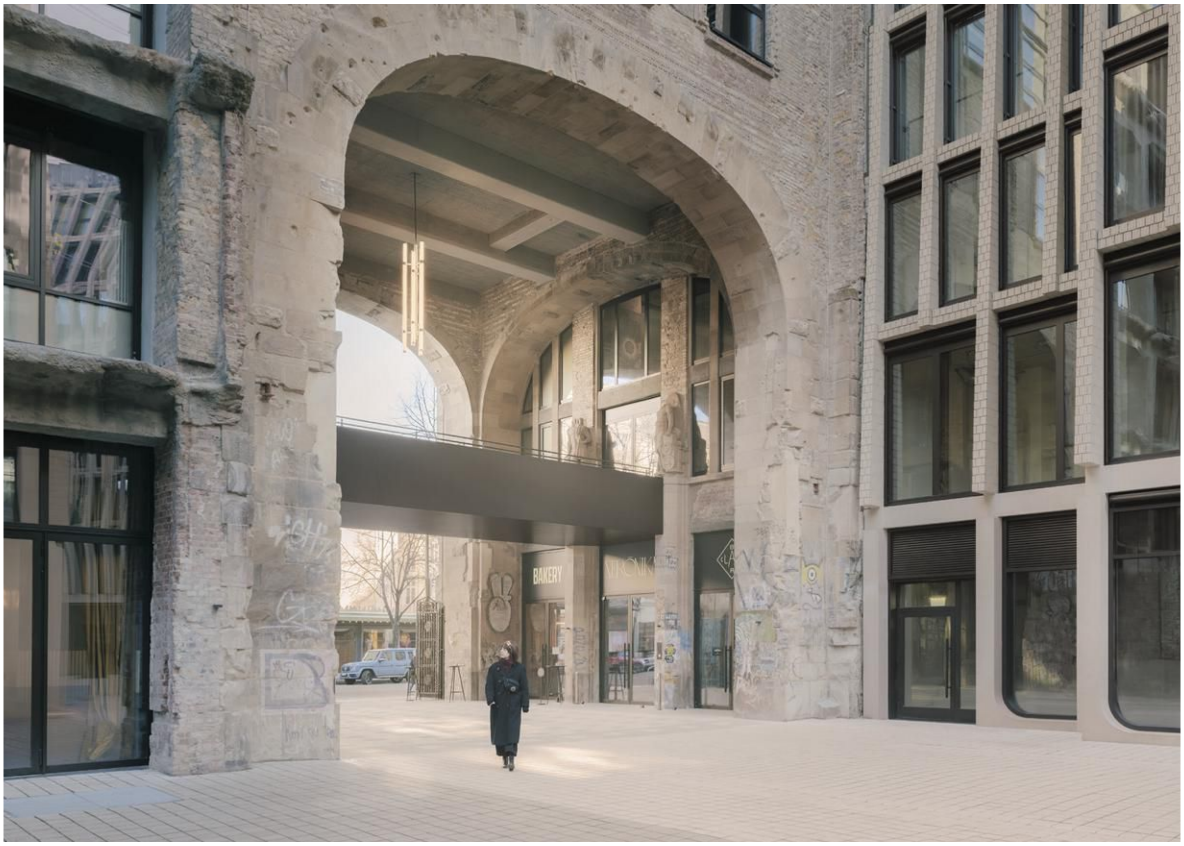
The rest of the development springs from the historic structure, comprising ground-up buildings—all mixed use but six primarily for apartments and three primarily for offices—shot through by plazas and passages. (Six of the buildings were designed by Herzog & de Meuron, with the others commissioned to Grüntuch Ernst and Arno Brandlhuber.) The guiding principle of the master plan, explains Mergenthaler: to restore the defining curved path of the former department store and reimagine it as an open-air pedestrian sluice lined with shops. “With Tacheles, we were basically left a head without a body. We thought it was very important to bring back the missing element, so you understand the full history of this place,” he says. “It’s all about layers—like a palimpsest—without falling into that trap of rebuilding the past.”

While the snaking canyon defines the western half of the complex, the eastern portion is organized around a series of linked courtyards. Nearly all the Herzog & de Meuron–designed exteriors are jacketed in textured grids of glazed, oatmeal-colored clay bricks. The firm rough-cut the blocks and faced the split ends outward. Inspired by the exposed remnants of the original Tacheles, this technique was also carried through the passageway to Friedrichstraße. The resulting corduroy-like surface recalls the hand-chipped concrete ribs of Paul Rudolph’s Art & Architecture Building, but also the firm’s own VitraHaus design museum in Weil am Rhein, Germany.

The long-demolished Friedrichstraße facade of Tacheles has been replaced with twin eight-story-high office blocks straddling the pedestrian passage, where narrow windows of reflective glass sit deep within protruding brick piers. “There had to be a gesture so that you recognize that this was a very important entrance,” Mergenthaler says. “Otherwise, people might just walk by.” Echoing the monumentality of the limestone arch on Oranienburgerstraße, Herzog & de Meuron’s gateway is announced by full-height reentrant corners, where the clay bricks have been rotated to reveal their smooth side faces. A pedestrian bridge held up by six exposed-concrete beams encloses the top of this gateway.

Along the passage, closely spaced brick piers taper as they rise. The top two floors rake back even more sharply to form a ser-





ROUGH-CUT brick clads many of the residential buildings (opposite) and the offices adjacent to the original structure (left). Others feature undulant stuccoed walls (above) or minimal timber-framed windows (above, left).

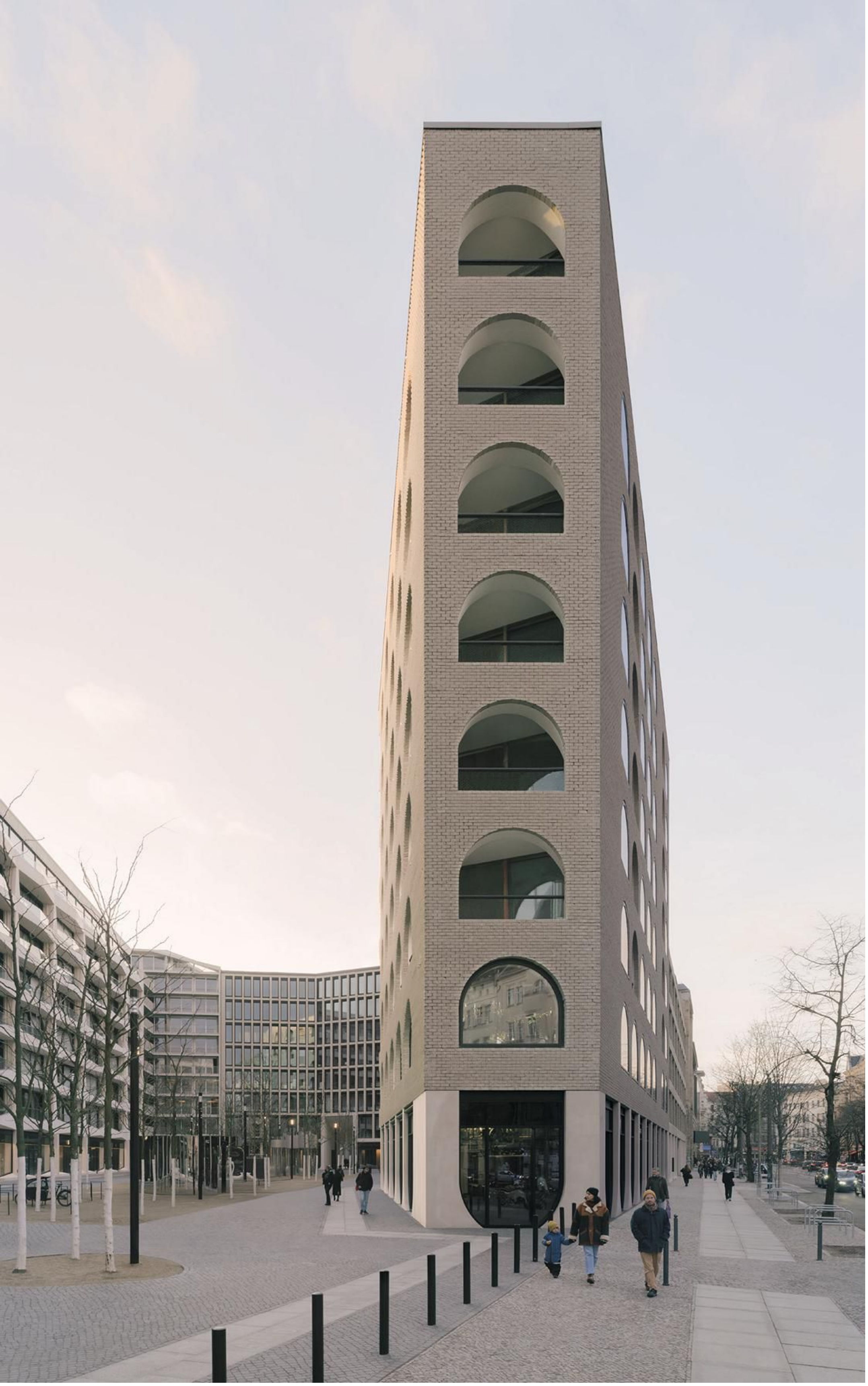
rated, mansard-like silhouette. Two additional sky bridges complete a collar of terraces ringing an octagonal knuckle where the arcade's towering dome once stood. There, a Chinese pagoda tree springs from a raised circular concrete planter—one of the passage's scant green sprigs.

Attempts to grow a curtain of mixed vines have so far proven unsuccessful. The scraggly, half-desiccated tendrils add a decidedly unverdant sky-high fillip to the clay canyon. Sixteen bronze-colored lanterns, each comprising six tubular LED masts hung from steel cables above, fittingly march down the chasm like steampunk chandeliers. But the muted aesthetic—in addition to the bricks, beige and cream-colored pavers as well as smooth cast concrete—at times feels pallid.

"We made a conscious decision to keep all the buildings within a similar mineral color palette," Mergenthaler says. "We didn't want a zoo of buildings. We aimed to create a cohesive framework where the public spaces and greenery take center stage." He hopes that shops and eateries will begin to bring a certain vibrancy. Many of the ground-floor retail spaces remain vacant a year after completion—but a Starbucks greets visitors at the Friedrichstraße gateway and an almost absurdly incongruous Cadillac dealership bumps up against Fotografiska's café.

The neutral character persists across the quarter's main eastern plaza, which is primarily residential but also features some office and retail spaces. Two of the apartment buildings, along the southern edge of the plaza, are a study in contrasts. One, designed by Grüntuch Ernst, features traditional townhouse layouts and faceted balconies. The other, by Herzog & de Meuron, is filled with loft-like open spaces and thin, timber-framed windows. At the northeastern edge of this plaza, Herzog & de Meuron also realized an eight-floor, reinforced-concrete wedge ordered by tiers of arched windows. Here, the broken-brick facade is refined to a more subtle texture—more cashmere than corduroy.

One could be forgiven for not sensing the presence of Johannisplatz, a more intimate residential plaza connecting the quarter to the quieter Johannisstraße to the south. Populated with two triangular plots of columnar Aspen trees, this small rectangular court sits between angular tiers of gray concrete micro-apartments, designed by Brandlhuber, and an undulant row of townhouses faced in putty-colored plaster with rolling waves of bay windows, unexpectedly designed by Herzog & de Meuron.



A WEDGE-SHAPED building marks the edge of the eastern plaza, which is dotted by three cylindrical 12-foot-tall chromed exhaust vents.

From a planning perspective, all the puzzle pieces would appear to fit: there is public access to, from, and through the complex from all directions. Plazas, rather than parking lots, abound. Vacant spaces have been transformed into high-end lofts. And the grand, curving passageway has faithfully reappeared. But what is missing? As yet, it is the sense of place that old Tacheles so vividly radiated. Who is this all for?

Chain stores, tourist shops, car dealerships—even Fotografiska, a for-profit private museum—all attest to the corporate credentials of the project, an antithesis of the bottom-up aesthetic that defined Berlin's heady post-Wall, pre-gentrification era. From "poor but sexy"—a famous description of the city made by former mayor Klaus Wowereit in 2006—to moneyed and mannered.

Mergenthaler explains that the "hardware"—the physical components—are all in place. Still outstanding is the "software" of cool shops and people. "There are still plenty of qualities you can enjoy as a Berliner—as a shortcut or hanging out on a bench under the trees," he says. He acknowledges the scraggly hanging gardens have just one summer behind them, but the hope is that plants will soon thrive, local shops will take root, the stage set will come alive.

It's an optimistic outlook for a site—and a city—so ruthlessly braced by history. But another question lingers: *How long is now?* ■

Nathan Eddy is a Berlin-based journalist and documentary filmmaker focused on issues of conservation and urban development.

Credits

ARCHITECT: Herzog & de Meuron — Jacques Herzog, Pierre de Meuron, Ascan Mergenthaler, partners; Jan-Christoph Lindert, Yasmin Kherad, Nicholas Lyons, associates; Gregor Herberholz, Elisabeth Klein, senior architects

ASSOCIATE ARCHITECT: Aukett+Heese

LANDSCAPE ARCHITECT: Vogt Landschaft

CONSULTANTS: WSK Ingenieure (structural, offices); Happold Ingenieurbüro (structural, residential); hhp Berlin Ingenieure für Brandschutz (fp); Liebert (m/e/p); Krebs+Kiefer (building physics); Bartenbach (lighting)

GENERAL CONTRACTOR: Hochtief

CLIENT: Aermont Capital

SIZE: 922,790 square feet

COST: withheld

COMPLETION DATE: June 2023

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THE RENOVATED AIA headquarters in Washington, D.C., is set to open later this year.

Carbon, Not Energy

A focus on emissions rather than energy efficiency is making carbon-free retrofits possible.

BY KATHARINE LOGAN

“ENERGY” IS often used as a proxy for “emissions,” but, when it comes to climate-friendly design, the distinction between them matters. Energy use itself isn’t what’s fueling the climate crisis; the problem is the greenhouse gas emissions that energy use generates. This distinction is especially important when it comes to retrofitting existing buildings. It can mean the difference between a zero-carbon retrofit that’s prohibitively expensive and one that a client can afford.

Even after minimizing a building’s energy consumption, meeting remaining needs from carbon-free sources on-site (net zero energy) is typically far more expensive than purchasing carbon-free energy from a utility that’s in the business of producing it. Yet the two approaches are equally successful in eliminating emissions—and that, from a climate perspective, is what counts. The less expensive approach is just that much more likely to happen. Going further, a focus on emissions logically extends to embodied as well as operating carbon, and so can lead to a total carbon takedown.

Demonstrating how the distinction between energy and emissions plays out in practice are three recent renovations of 20th-century office buildings that have achieved carbon-free benchmarks (carbon-free meaning the net amount of greenhouse gas they generate is zero) on constrained budgets. The AIA’s overhaul of its seven-story, 148,000-square-foot headquarters, in Washington, D.C., is set for completion in June of this year. Originally built in 1973, the renovated building—to be renamed the AIA Global Campus for Art & Design—aims to achieve net zero embodied carbon and to leapfrog the AIA 2030 Commitment’s phased reductions in operating emissions by five years. The repositioning and expansion of the 1974 Silvio J. Mollo Federal Building, a 10-story, 160,000-square-foot property located in Lower Manhattan and owned by the U.S. General Services Administration (GSA), is targeting the International Living Future Institute’s (ILFI) Zero Carbon Certification. And the recently renamed Arthur Erickson Place, a 26-story, 363,000-square-foot heritage office tower designed by Erickson and built in 1968 in Vancouver, last year was certified under the Canada Green Building Council’s Zero Carbon Building-Performance Standard. With over 80 percent of 2050’s buildings already standing, reducing existing structures’ greenhouse-gas output may well be the architecture and construction sector’s most effective strategy for mitigating climate change.

The AIA’s transformation of its 50-year-old Brutalist building is helping to set new standards for zero-carbon renovations. And yet, without a paradigm shift at the outset, “to

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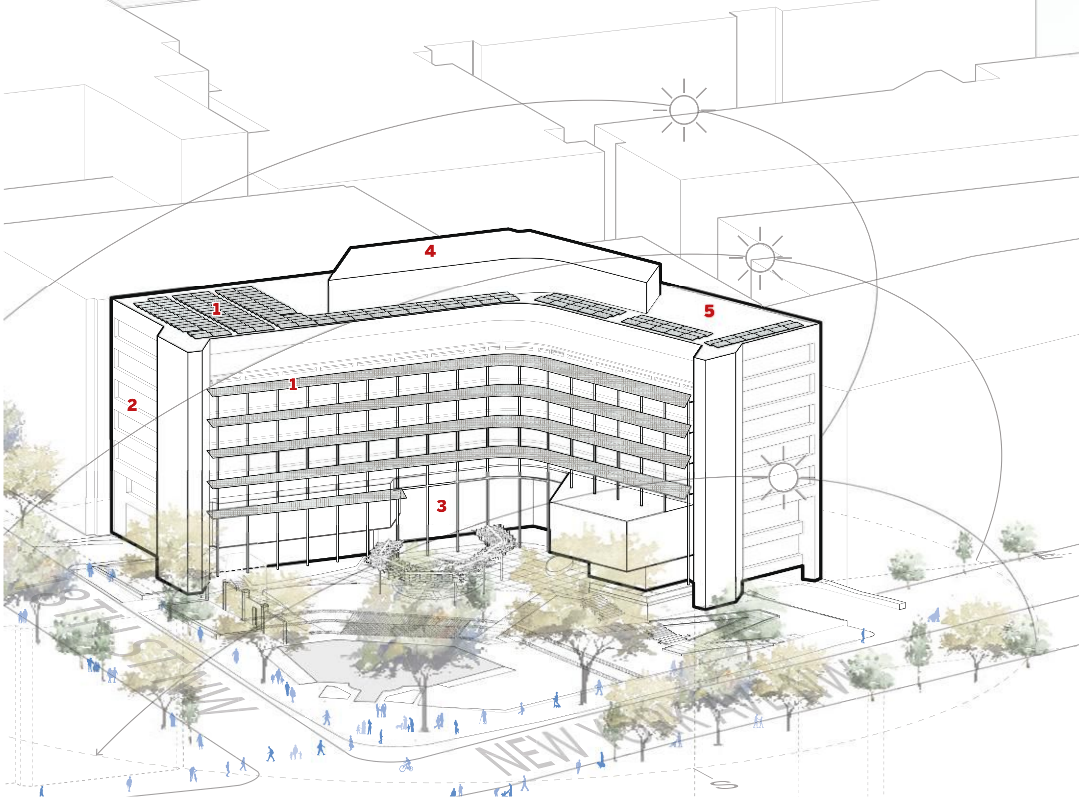


AIA GLOBAL CAMPUS—CLIMATE FEATURES

1 PV
2 VACUUM-INSULATED GLAZING (ON NORTH AND EAST)
3 HIGH-PERFORMANCE FACADE
4 ELECTRIC AIR-SOURCE HEAT PUMP
5 R-40 ROOF

- LED LIGHTING WITH OCCUPANCY SENSORS
- BUILDING-STRUCTURE REUSE
- LOW-CARBON MATERIALS
- ELECTRIFICATION
- OFF-SITE RENEWABLES
- EMBODIED-CARBON OFFSET

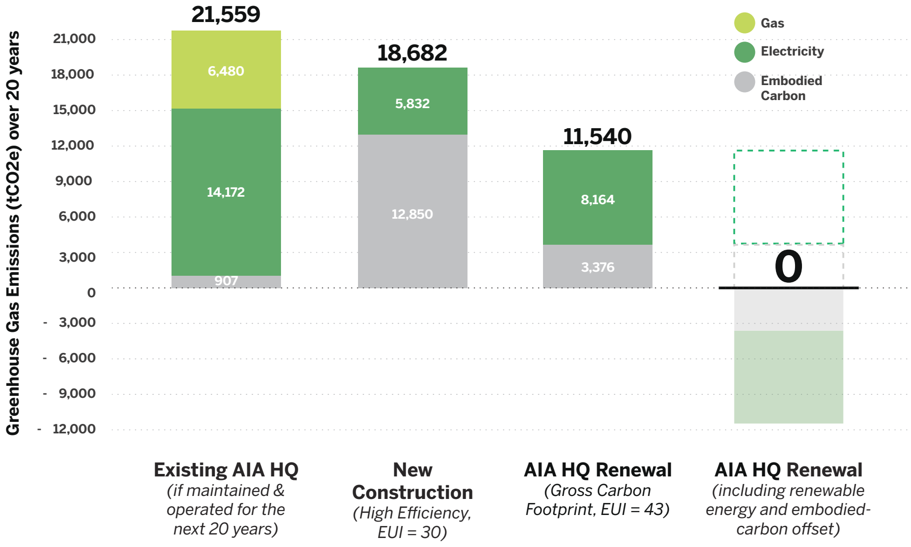
start with carbon as the framing, not energy," the achievement wouldn't have been possible, says Brad Jacobson, a principal at architecture firm EHDD. Preliminary studies indicated that a strategy of intensive energy-use reduction combined with on-site renewables to meet all the building's energy needs would have exceeded the AIA's budget, while still leaving the renovation's embodied carbon unmitigated. Instead, the project team adopted a five-step decarbonization strategy that takes account of total carbon load at a budget-compliant price.

The first step consisted of measures to improve energy performance as much as the $60 million budget would bear. These included replacing single glazing with thermally broken double glazing, adding insulation to the walls, upgrading HVAC components, and improving the energy performance of lighting and domestic hot water systems. External shade canopies of fritted glass, with integrated photovoltaics (PVs) above south- and west-facing ribbon windows, reduce cooling loads and improve daylighting, while also expressing the AIA's performance goals and design values. Together, these improvements are expected to reduce the campus's energy use by about 30 percent.

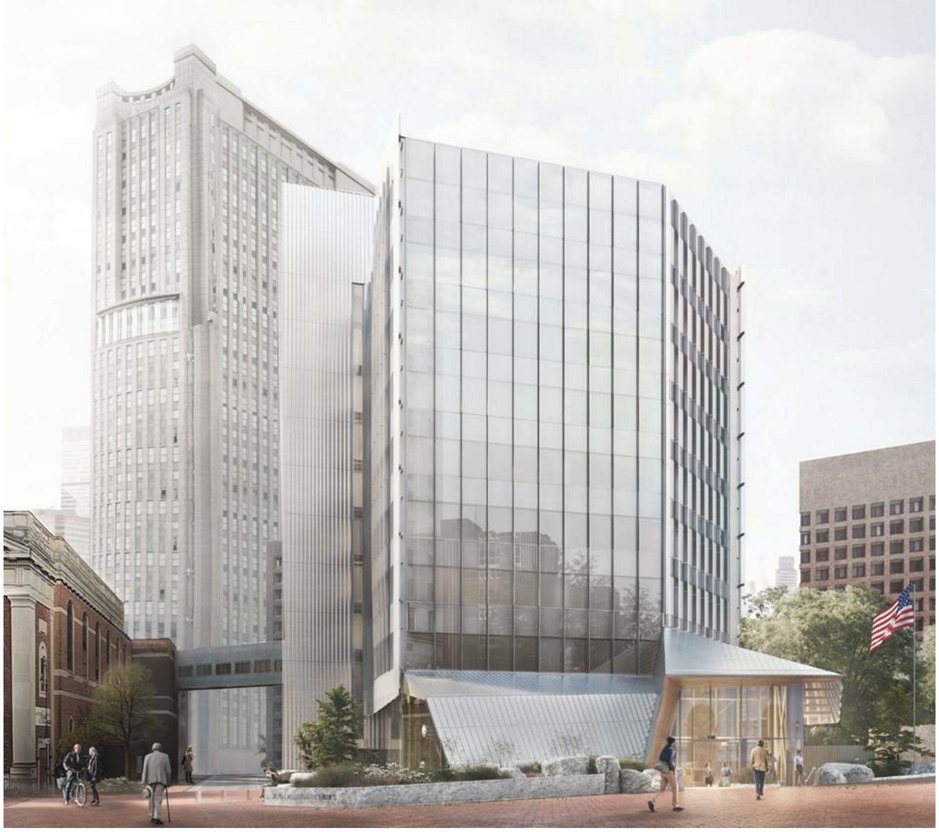
Second, the renovation eliminated fossil fuels, replacing the original gas boiler with six air-source heat pumps on the roof. "Heat pumps are electric heating done efficiently," says Peter Rumsey, founder of Point Energy Innovations, the project's m/e/p, energy, and decarbonization consultant. "They are a critical part of electrifying buildings." With a coefficient of performance (the ratio of the energy they need to run to the useful energy they put out) typically between 2 and 3, heat pumps use about a third of the power a boiler or an electric resistance heater would use to supply the same amount of heat. They can also provide cooling, pumping heat out of a building. The technology has been around for decades, but its widespread adoption for commercial buildings is relatively new, Rumsey says.

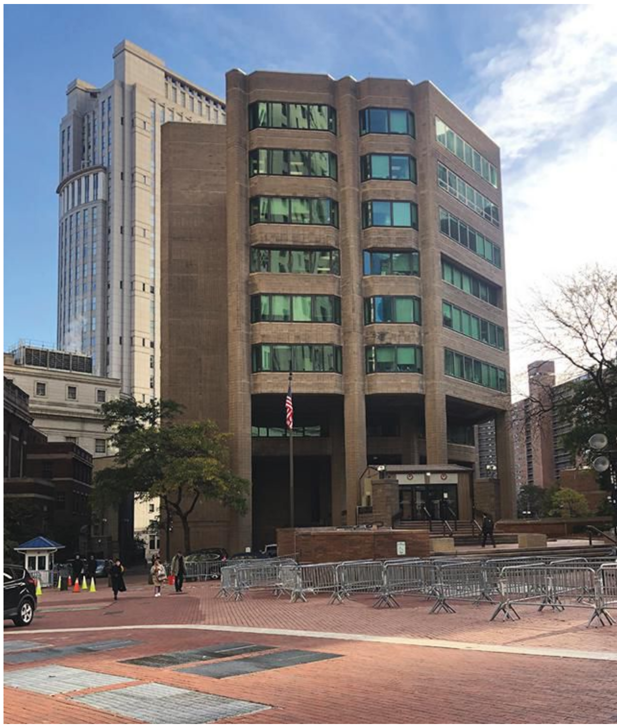
With the Global Campus design fully electrified, the next step was to source its power from carbon-free renewables. The PVs integrated into the shade canopies, and others installed on the roof, account for about 10 percent of the building's needs. For the remainder, the AIA will purchase zero-carbon electricity from D.C.'s grid. This energy will have full additionality, meaning new PVs will be added to the grid to provide it, just as if the AIA had installed them at its Global Campus, but without the organization's having to find the space and up-front capital. Operational emissions: net zero.

The fourth step focused on embodied emissions, the ones that resulted from producing the renovation's materials, products, and furnishings and installing them on-site. A life-cycle carbon calculator, EPIC (developed by EHDD and available free online as c.scale), helped to establish an embodied-emissions budget for the project. What followed was a rigorous, iterative approach to identifying low-carbon options for each building system and product, including a manufacturers' questionnaire to verify product performance, and resulting in a low-



AIA GLOBAL CAMPUS—CARBON EMISSIONS COMPARISON





THE 1974 Mollo Federal Building (above), in Lower Manhattan, is planned to be retrofit (left) to achieve ILFI zero-carbon certification.

carbon specification and procurement. These efforts reduced embodied emissions by 55 percent compared to a baseline new building, including a 26 percent savings from the reuse of the existing structure.

Offsetting the remaining embodied carbon led to one of the most innovative aspects of the project. Working with Habitat for Humanity, the AIA purchased rooftop PVs for 70 households in a nearby affordable-housing development. In addition to cutting power bills for low-income residents (a demographic that has been disproportionately affected by climate and environmental impacts), the fully additional, emissions-free energy from the panels will offset the renovation's embodied carbon, with most of the mitigation occurring during the first 15 years. Expanding the view of the project to include all of its net emissions, even when they're generated or mitigated beyond its lot lines, "is a much more pragmatic view of how we actually address climate change with the proper scale and speed," says Jacobson. Global warming, he points out, "doesn't actually care about where, but it does care about when."

Nothing says scale like the GSA, the largest landlord in the U.S., with some 8,800 owned or leased assets totaling about 370 million square feet (though the future of that portfolio is uncertain with the current administration's goal of shrinking the agency's holdings). The planned modernization of one GSA property, the Silvio J. Mollo Federal Building, which is home to the U.S. Attorney's Office for the Southern District of New York, has multiple goals. Slated for completion in 2026, it will increase the building's square footage (by hanging a new facade outboard of the structure and infilling the floor slab), visually associate the building with the nearby courthouse (rather than with the nearby prison it was originally paired with), improve its entry sequence and relation to the plaza on which it fronts, and upgrade its accessibility. On top of that, the project is intended to serve as a model for decarbonizing the GSA's entire portfolio, says Gabriel Wilcox, director of sustainable design at Krueck Sexton Partners, the project's architect, "so this has huge scalable impact."

As with the AIA Global Campus, the key to decarbonizing the Mollo Building is electrification. Helping to do that as efficiently as possible (with a 75 percent reduction in energy use compared to a baseline building), the new facade is designed to optimize such factors as the window-to-wall ratio, the U-value of the wall, the solar-heating coefficient of the glazing, and external shading. Also helping are improvements to the air-handling system's heat recovery and distribution efficiency, balancing loads as evenly as possible and avoiding peaks for either heating or cooling. "In the olden days, to oversize a boiler for a couple of peaking hours cost you almost nothing," says Nico Kienzl, senior executive director in the New York office of Atelier Ten, the project's sustainability consultant, "but if you do this electrically, additional heat pumps are proportionately more expensive. So, you really need to get the overall building right."

Relying on heat pumps for both heating and cooling will allow the project to eliminate an entire subsystem. Even though cooling towers and chillers would have provided more energy-efficient cooling by a factor of 1 or 2 percent, not installing them will save almost a million dollars in first costs, with additional savings on maintenance (predicted to exceed the value of the 1 or 2 percent energy savings). Add in the reduction in embodied emissions from less equipment, and the savings of about 400,000 gallons of water per year that the cooling towers would have needed, and heat pumps are the clear winner on cost, carbon,

IMAGES: © FILIPPO BOLOGNESE IMAGES (TOP, LEFT); COURTESY KRUECK SEXTON PARTNERS (TOP, RIGHT AND OPPOSITE)

and water conservation. Plus, in the roof space that a separate cooling system would have needed, there's now room for PVs. "So this is really a super-holistic view," Kienzl says, "not just chasing one metric."

On-site PVs, integrated into shade fins as well as positioned on the roof, are expected to provide about 10 percent of the building's energy (a real achievement, given the small footprint-to-volume ratio, Wilcox notes). For the remainder, the GSA plans to purchase clean power from the grid, which it has historically done; in this case, a longer-than-usual 15-year contract will meet ILFI's Zero Carbon Certification requirements.

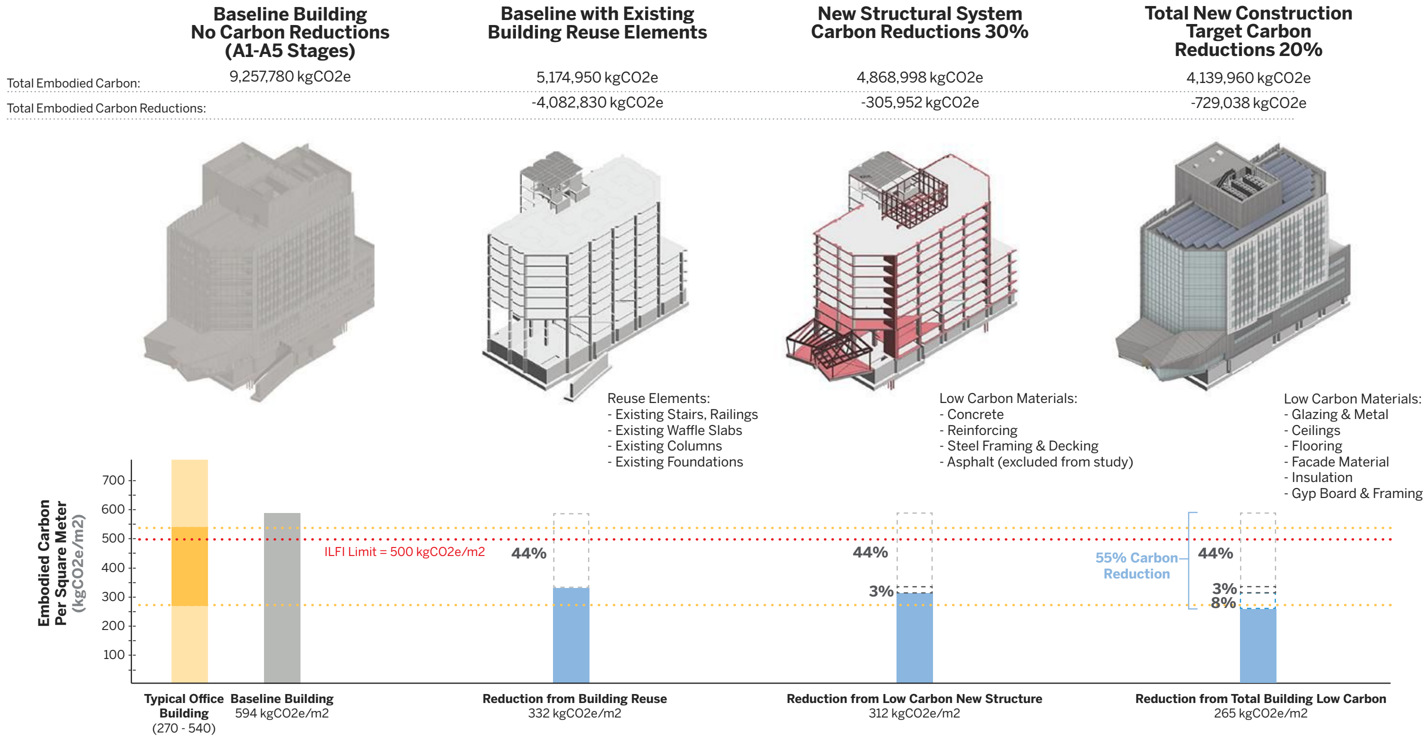
After bringing operational emissions to net zero, the Mollo design prioritized materials with low embodied carbon. The facade, for example, consists of zinc panels, which have "far and away" fewer embodied emissions, Kienzl says, compared to stainless steel or, in this case, even stone (for which security considerations would have mandated a carbon-intensive steel backing). As with the cooling towers and chillers, materials were eliminated whenever possible; rather than installing ceilings throughout, for example, the design takes opportunities to expose the existing waffle slabs. Bio-based elements such as wood doors, handrails, and ceilings (where they were preferred) were selected both to complement the concrete and to sequester carbon. Salvaged materials were used as much as possible, especially in the landscape.

A one-time carbon offset to mitigate inevitable embodied emissions has been estimated in the range of $56,000. (The price of offsets varies with type and market timing.) The architects have provided the GSA with research for an alternate pathway: investing in additional renewables on one of its other buildings.

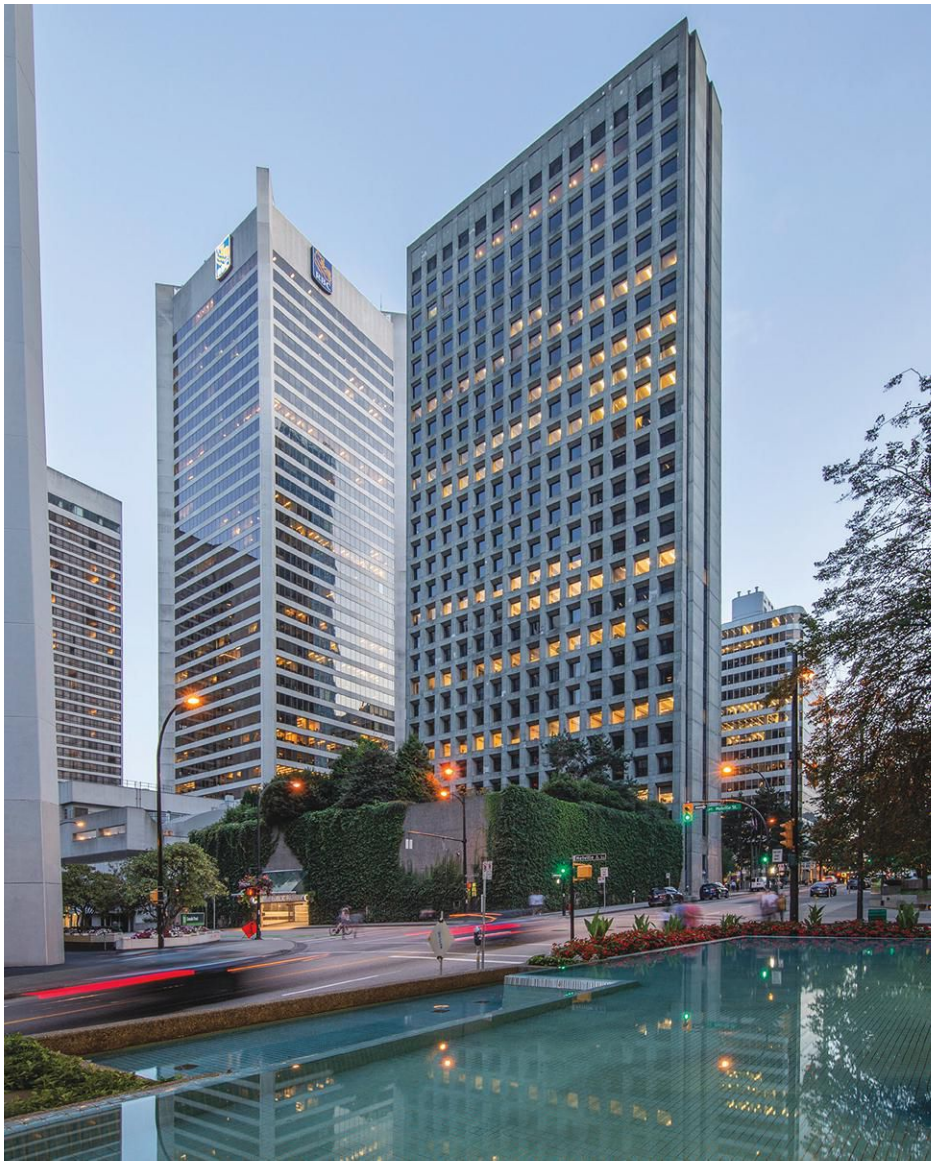
Although the facade retrofits on the AIA Global Campus and the Mollo Federal Building helped to make their electrification more energy efficient, the Arthur Erickson Place (AEP) retrofit proves that it is in fact entirely possible to decarbonize a building without touching its facade. "The green-building industry has historically been dominated by new construction," says Brad White, president of SES Consulting, the mechanical consultant for AEP's zero-carbon achievement, "so there's almost a bias there about how important the envelope is." That mindset needs to change, he says. "Especially around retrofits, if the goal is carbon, then you shouldn't really be thinking about the envelope too much."

Even with its original single glazing, the Erickson retrofit, completing in May 2026, has dropped the building's operating carbon by 97 percent (with the remaining 3 percent a function of an almost but not perfectly clean grid). Embodied carbon was limited to the mechanical equipment and the process of installing it. But the cost difference between electrifying with or without engaging the facade was an order of magnitude that dictated whether the retrofit would move forward at all. "I might be able to fix the mechanical systems and fully electrify for $10 million, but to redo the facade would probably be $100 million," says Joe Brown, vice president for building technology and decarbonization lead at KingSett Capital, a private equity real-estate investment firm that, with Crestpoint Real Estate Investments, co-owns the building. And that's not even considering the disruption to tenants or the need for approvals to modify a heritage building.

The first step in bringing Erickson Place to zero carbon operations was to make refinements to the existing environmental systems—things like fan upgrades, new motors, improved controls, and reconnecting a disused perimeter distribution system. These reduced natural gas use (and therefore emissions) by about 20 percent, with an additional 10 percent savings in electricity. The owner



MOLLO BUILDING RENOVATION—EMBODIED-CARBON STRATEGY



ARTHUR ERICKSON PLACE in Vancouver has been decarbonized without any alterations to its heritage facade.

then ran the building through a winter, and SES used the resulting performance data as the basis for sizing the equipment for the retrofit. Without that data, the design would have had to rely on energy modeling, White says: “We’d have to be much more conservative, and it would probably have cost a lot more.”

The new system draws thermal energy from three sources. Recovering heat from interior zones (which require year-round cooling) and transferring it to perimeter zones where it’s needed accounts for about half of the building’s heating load over the course of the year. Then there are new air-source heat pumps that take atmospheric heat and put it in the building (or vice-versa). Third, a backup electric boiler handles peak loads (about 10 to 15 percent of the total annual load). White estimates that including a backup boiler cut the required number of heat pumps by one-third or even half. “In a new building, with the best possible envelope, it’s a little more practical to use only heat pumps,” he says, “but in retrofitting older buildings, we look much more to these hybrid solutions.” (The Mollo retrofit also includes an electric boiler to assist if, for example, heat pumps need to cycle through a defrost mode during a prolonged cold snap.)

For a building in KingSett’s portfolio to become a candidate for electrification requires a combination of three factors, Brown says. Mechanical systems need to be reaching their end of life, so that the capital project is already on the books, and it’s just a question of the incremental cost to electrify. Second, the building needs to be connected to a grid that’s clean. “Otherwise, you might as well heat by burning the gas in the building rather than burn gas or coal at a plant, convert it to electricity, and then convert it back to heat at the building,” he says. Third, “we need to make a business case to get these projects pushed over the finish line.” Electricity is more expensive than fossil fuel, and heat pumps are more expensive than boilers, so even with more efficient operation, he says, the economics are often pretty much a wash. “Incentive programs can really help make the numbers work,” he says.

Does decarbonization itself have business value? “We believe it does,” Brown says, noting that across North America—despite what government changes may come and regardless of whether it’s a federal, state, provincial, or city government that makes the environmental push—in major urban centers, one of those levels of government will probably be requiring improved carbon performance for existing buildings. Lenders are starting to get there as well, he says, and tenants are demanding it: “This is where the real-estate industry is going.” ■

CONTINUING EDUCATION

To earn one AIA learning unit (LU), including one hour of health, safety, and welfare (HSW) credit, read “Carbon, Not Energy,” review the supplemental material found at architecturalrecord.com, and complete the quiz at continuingeducation.bnpmedia.com. Upon passing the test, you will receive a certificate of completion, and your credit will be automatically reported to the AIA. Additional information regarding credit-reporting and continuing-education requirements can be found at continuingeducation.bnpmedia.com.

Learning Objectives

1 Explain the distinction between energy use and emissions.

2 Outline the steps that the teams behind the three profiled retrofit projects took to achieve net zero carbon.

3 Describe the strategies used by these projects to address both operational and embodied carbon.

4 Discuss the role of electrification in these projects.

AIA/CES Course #K2503A

PHOTOGRAPHY: © HARIRI PONTARINI ARCHITECTS

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AIA Continuing Education Provider

In this section, you will find three compelling courses highlighting creative solutions for tomorrow's buildings brought to you by industry leaders. Read a course, and then visit our online Continuing Education Center at ce.architecturalrecord.com to take the quiz free of charge to earn credits.

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Multifamily Housing—Addressing a Housing Crisis

Sponsored by CRL and New Millennium, A Steel Dynamics Company

CREDIT: 1 AIA LU/HSW; 1 IDCEC CEU/HSW; 0.1 ICC CEU

PM | RE | ST

Photo courtesy of Behr Paint Company

Sustainable by Design

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CREDIT: 1 AIA LU/HSW; 1 IDCEC CEU/HSW; 0.1 ICC CEU

IN | SU | GB

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Western Red Cedar and the Benefits of Biophilic Design

Sponsored by Western Red Cedar Lumber Association

CREDIT: 1 AIA LU/HSW; 0.1 ICC CEU; 1 GBCI CE HOUR; 1 IDCEC CEU/HSW; 1 PDH, LA CES/HSW

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CATEGORIES

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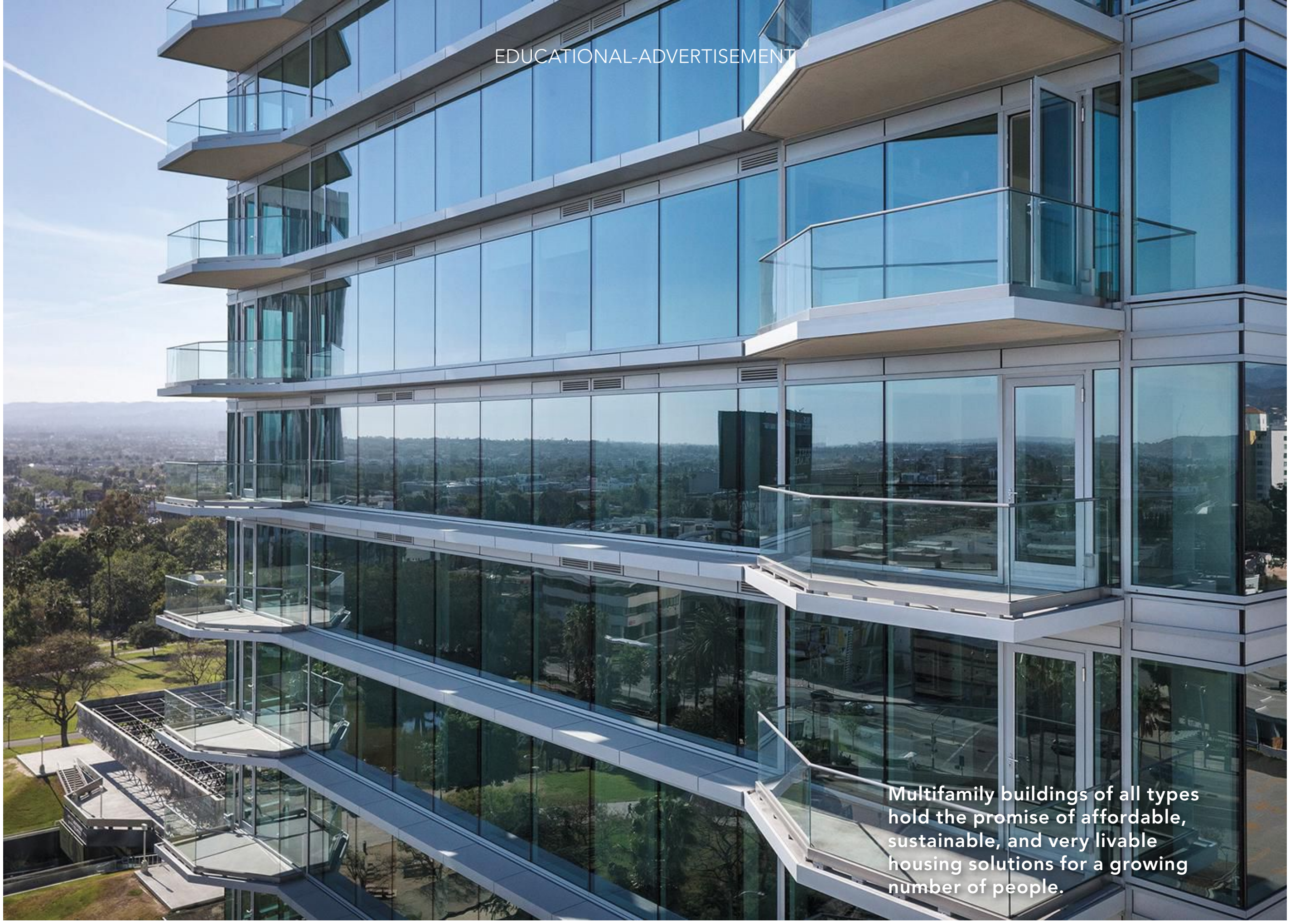
Courses may qualify for learning hours through most Canadian provincial architectural associations.



Multifamily buildings of all types hold the promise of affordable, sustainable, and very livable housing solutions for a growing number of people.

Photo courtesy of CRL; © Chipper Hatter

Multifamily Housing—Addressing a Housing Crisis

Architects are playing a key role in designing appropriate solutions

Sponsored by **CRL** and **New Millennium, A Steel Dynamics Company**

By Peter J. Arsenault, FAIA, NCARB, LEED AP

It's no secret that it has been getting tougher for Americans to find and even afford the housing of their choice in a lot of different cities and towns across the country. Many of the reasons for this are outside of an architect's control such as the general economy, interest rates, and the changing nature of housing supply and demand. Nonetheless, architects are continuing to be asked to meet the critical demand for multifamily housing for many different income classes with units being offered by developers either for rent or sale. In many cities, this has been serving a basic need, since some multifamily units are often seen as the new "starter home." In other cases, the market is being transformed with an influx of luxury or higher-end housing catering to changing demographics and evolving households. The ability of many people to work remotely away from an employer's workplace is also clearly influencing some housing markets but also bringing the need for workspaces to be designed as an integral part of the design of residential units. All of this is coupled with the ongoing need and market desire for sustainable construction that reduces energy use and provides green building construction. This course reviews all of these issues with some specific approaches focused on achieving appealing, well-designed, multifamily housing solutions.

CONTINUING EDUCATION

1 AIA LU/HSW

1 IDCEC CEU/HSW

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Learning Objectives

After completing this course, you should be able to:

1. Assess options for creating structural floor and wall systems that promote the efficient use of space while meeting fire safety standards.
2. Explain the ways composite design meets the need for structural capacity, fire control, and acoustics in cost-effective solutions.
3. Investigate the beneficial attributes to people of glass and glazing systems that enhance daylight, views, and wellness in multifamily buildings.
4. Review ways that glass and glazing systems can be balanced with energy performance particularly for "work-at-home" situations in multifamily buildings.

To receive AIA credit, you are required to read the entire article and pass the quiz. Visit **ce.architecturalrecord.com** for the complete text and to take the quiz for free.

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EFFICIENT STRUCTURAL SYSTEMS

There are always choices for determining the best structural system to use for a particular multifamily project. Often, the size and height directly influence the final selection since different systems are better suited or more economical for different situations. Low-rise construction (3-4 stories) will likely be most economical using wood framing though other types of construction make sense if prioritizing long-term investment. For larger projects, creating multifamily buildings that are between 5-12 stories often makes sense for density and economy. It can, however, be overwhelming to weigh all of the pros and cons of different structural systems for design flexibility and cost-effectiveness. For this type and size of multifamily building, the most common structural systems are based on either post-tension concrete or composite steel construction. The selection is typically determined by the specific criteria and needs of a given project not only for structural capacity, but for fire, acoustics, and bay size. Some of those criteria are dictated by code and life safety concerns while others by comfort and marketing issues.

Composite steel construction design takes advantage of the complementary relationship between concrete and steel. The engineered combination of the two materials provides great strength with notably less weight than typical concrete construction. In many cases, this type of floor system can be supported by bearing walls of conventional metal framing of cold-formed steel (CFS). Properly engineered and specified, this composite approach creates a long-span, non-combustible floor system that has been used quite effectively in apartments, hotels, student housing, and assisted living facilities. While such an approach can be used on any size or type of project, it has been found to be particularly appealing when building heights approach 75 feet or greater – all the way up to 12 stories.

Attributes of Composite Structural Systems

Composite steel deck and concrete systems supported by CFS framing generally incorporate thinner floor slabs and lighter-weight construction compared to many of the alternatives. As such, they are known for the following attributes.

- **Design Flexibility:** Composite system design takes advantage of the complementary relationship between concrete and steel, maximizing design flexibility. There are solutions for designs that choose to expose the composite system, whether using the steel deck as a ceiling or the concrete as a floor for an industrial aesthetic. Finished or not, composite decks that use dovetail profiles, as opposed to the conventional trapezoidal deck profile, put greater mass in the bottom of the decking flute. The result is less concrete, eliciting a lighter deck slab with a collection of dovetail composite details to accompany a wide range of structural systems and requirements. This facilitates greater span capacities and lighter overall structural systems.
- **Fire Resistance:** Concrete is well documented as an excellent material for fire resistance ratings and combining it with dovetail profiled steel decking has been tested for up to 2-hour and even 3-hour ratings. This is a considerable benefit of the system as it achieves increased fire ratings with less concrete and allows the system to be sufficient without the need for additional protection. Deck manufacturers are able to provide UL-rated details for floor assemblies and head-of-wall conditions (perpendicular and parallel to party walls) to assist design professionals in meeting project-specific fire resistance ratings. It is worth noting that traditional composite decks (i.e., trapezoidal) require time-consuming "castle cutting" at the head-of-wall condition – the installer needs to make tracing cuts along the underside of the trapezoidal section at bearing walls. With the dovetail profile, the solution is easy and concise by simply offsetting the flutes of the deck and using break metal where needed following the appropriate UL Rated design details.
- **Acoustics:** Composite design is beneficial for acoustics, particularly in a multifamily building where sound transmission needs to be controlled between living units. The mass of the materials used is a key for sound attenuation (i.e., Sound Transmission Class (STC) ratings per ASTM E90) as is decoupling the materials to mitigate impact sound transfer (i.e., Impact Insulation Class (IIC) per ASTM E492). The relative mass of concrete and steel in a composite system helps address the sound transfer requirements. The use of finish flooring over sound mats or padding used in concert with furring in the ceiling can easily meet or exceed code minimums for STC and IIC. Proper attention to acoustics also helps with the wellness of the occupants.
- **Ease of Construction:** Cold-formed metal studs are commonly used in many types of construction with design and installation similarities to building with wood. As such, there is a ready labor force already familiar with building load-bearing light-gauge metal framing walls on metal or composite floor decks. Compared to wood framing, there is

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Multifamily buildings constructed using composite floor construction have many attributes that contribute to buildings that are better designed, more efficient, and cost-effective.

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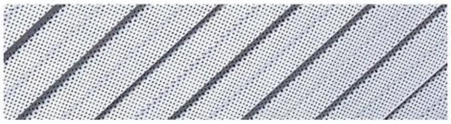

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After all the deck panels are in place, the concrete pour can be completed to create the composite floor system.

also the benefit of meeting fire resistance requirements and reducing the possibility of fire during construction, reducing the cost of Builder's Risk Insurance. One of the unique features of dovetail profile floor decking is the use of hanging devices that speed up the rate of installation for anything that needs to be suspended (i.e. mechanical, electrical, plumbing, etc.) Specifically, wedge hangers are fabricated to rely on tightening in place rather than drilling through steel and concrete. Such hangers that carry UL ratings save other trades time and effort as they are able to adjust such hangers quickly and easily to respond to different field conditions. Overall, dovetail composite systems combine the quality of post-tension concrete with the labor and material cost stability of platform frame construction.

- **Modularity:** The panelizing of wall sections in multistory buildings continues to be gaining popularity. In part, this is due to more factory-controlled fabricators being available using modular construction innovations. As such, designers can work with contractors and fabricators to optimize framing solutions to match their design intent. Collaboration on slab design, span, and shoring needs allows for efficient framing that can be adapted to different geographic locations and regional capabilities. Unlike wood framing or light-gauge trusses, the floor or roof members do not necessarily need to align with the CFS studs, allowing for increased tolerance and more flexibility. The expanding ecosystem of prefabricated components adds to the aesthetics, quality, and cost savings of multifamily construction.
- **Sustainability:** The embodied carbon content of construction materials is a significant concern related to carbon dioxide emissions and global warming. Strategies that reduce the amount of concrete used in buildings are increasingly being used, since concrete as a material is very energy-intensive with a high carbon footprint. Composite structural systems help reduce the amount of concrete used in buildings and thus reduce the carbon footprint of a project. Similarly, the steel components offer longevity and resilience which align with sustainability goals. Steel components routinely contain a significant amount of recycled content and producers have widely adopted innovative energy reduction strategies in production of decking and other products.

Architects using long-span composite-floor systems can achieve reductions in the construction timeline and the total cost of a multi-story project. Specifying dovetail composite floor deck and CFS load-bearing demising walls have provided a surprising set of cost benefits, compared to other construction approaches such as post-tensioned concrete. For example, the significantly lighter weight dovetail composite floors can often be supported by a spread of concrete footing foundations and may eliminate the need for piles and pile caps in some cases. By virtue of the longer composite floor spans, up to 28 feet, the number of support columns can be reduced and those required can be smaller in girth. During construction, decking spans can reach 16 feet without the need for temporary shoring support. The thinner, faster-curing composite system allows for tighter scheduling of the trades that follow after in the schedule, including plumbing and other rough-in work. There are documented cases where many weeks were removed from the project timeline using this approach.

GLASS AND GLAZING SYSTEMS IN LIVING UNITS

Multifamily designs often seek to provide occupants with expansive views and a visual connection to the surrounding landscape or cityscape. This design feature can directly enhance the occupant experience, which is why they are often a sought-after feature in many multifamily developments. There are several aspects to incorporating appropriate fenestration in multifamily buildings.

- **Daylighting:** The addition of daylight into a building is the strongest contributor of fenestration to indoor environmental quality. Daylight has been shown to provide human health benefits as well as productivity boosts—all contributing to improved wellness for people. Operable windows and doors also allow for beneficial natural air ventilation in a building.

Peter J. Arsenault, FAIA, NCARB, LEED AP is a nationally known architect who has authored nearly 300 continuing education courses focused on advancing building performance through better design. www.pjaarch.com www.linkedin.com/in/pjaarch

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PRODUCT REVIEW

Multifamily Housing – Addressing a Housing Crisis

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Architects and designers can prioritize the planet and human health by giving careful consideration to how they evaluate and select finishes. When selected with sustainability in mind, paints and coatings can increase durability, reduce chemical impacts, and can contribute to improved indoor air quality.

Photo courtesy of Behr Paint Company

Sustainable by Design

How paint can contribute to greener and healthier commercial and residential spaces

Sponsored by Behr Paint Company

By Amanda Voss

This presentation explores the transformative role of sustainable coatings in advancing socially responsible, green design. The content dives into the environmental and health impacts of volatile organic compounds (VOCs), gaining a deep understanding of the growing concerns around their use. The course also highlights the evolution of advanced technologies revolutionizing the paint industry while examining the rigorous testing methods and standards that ensure product performance and sustainability. The presentation illustrates how to make informed decisions when specifying paint systems, considering key factors that balance aesthetics, durability, and environmental responsibility. Lastly, this course will review the latest trends in sustainable design, inspiring designers to be leaders in creating more sustainable built environments.

Continues at ce.architecturalrecord.com

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1 AIA LU/HSW

1 IDCEC CEU/HSW

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Learning Objectives

After completing this course, you should be able to:

1. Define sustainability for the built environment and apply these tenets to decision-making and design.
2. Anticipate the sustainability challenges from VOC sources and their effects on indoor environments.
3. Describe the basic components of paint and how these attributes impact coating quality and performance and their influence on sustainability.
4. Leverage third-party certifications such as UL GREENGUARD® and MPI® Extreme Green™ (X-Green) Certification to ensure confident specifications.
5. Explain how environmental and safety interests will advance commercial paints in the near future.

To receive AIA credit, you are required to complete the entire course and pass the quiz. Visit **ce.architecturalrecord.com** for the complete text and to take the quiz for free.

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Halfmoon Bay Cabin.
Architect: Patrick Warren

Photo courtesy of Ema Peter

Western Red Cedar and the Benefits of Biophilic Design

Sponsored by Western Red Cedar Lumber Association

Biophilia literally means a love of life or living things and is a personality trait initially described by Erich Fromm, and later Edward O. Wilson. Both agree that "biophilia has a biological basis and it is fundamental to develop harmonious relationships between humans and nature." Fromm used the term biophilia to "describe the psychological orientation of being attracted to all that is alive and vital," while Wilson used the term biophilia to "describe the traits of evolutionary adaptation that allow us to develop a mental link with the living world and nature."

Wilson ultimately popularized the biophilia hypothesis, which suggests that humans possess an innate tendency to seek connections with nature and other forms of life, in his book, *Biophilia*. In 1993, Wilson and colleague Stephen R. Kellert published the collection of essays *The Biophilia Hypothesis*, which claims that "the human dependence on nature extends far beyond the simple issues of material and physical sustenance to encompass as well the human craving for aesthetic, intellectual, cognitive, and even spiritual meaning and satisfaction."

INTRODUCTION TO BIOPHILIC DESIGN

Biophilic design is design that reconnects us to nature. Nature partially satisfies the psychological need to belong and relate, so activities that involve contact with nature have been shown to improve connectedness, well-being, and promote behavior that benefits the environment. Studies show that people tend to behave more altruistically in natural environments and have an increased sense of satisfaction with life.

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GBCI 1 GBCI CE HOUR
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PDH 1 PDH, LA CES/HSW

Learning Objectives

After completing this course, you should be able to:

1. Identify the principles of biophilic design and its benefits for occupant health and well-being.
2. Examine the importance of incorporating biophilic design into the built environment.
3. Describe the properties of wood, specifically Western Red Cedar, and how it elicits biophilic responses in building occupants.
4. Explore how designers can use wood in the built environment and case studies where Western Red Cedar contributed to biophilic design.

To receive AIA credit, you are required to read the entire article and pass the quiz. Visit **ce.architecturalrecord.com** for the complete text and to take the quiz for free.

AIA COURSE #K2309R

WESTERN RED CEDAR LUMBER ASSOCIATION REAL CEDAR WRCLA

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Ongoing Exhibitions

The Persistence of Hand Drawing: Interior Rendering Today
New York
Through April 27, 2025
The New York School of Interior Design (NYSID) presents an exhibition examining the enduring practice of hand-drawn architectural renderings in an era dominated by digital imagery. Curated by design historians Donald Albrecht and Thomas Mellins, it showcases work from 12 leading New York–based architects and designers, including Mita Corsini Bland and Marshall Brown, paired with historical drawings from the NYSID Archive. See nysid.edu.

Marcel Broodthaers: The Architect is Absent
Brussels
Through June 29, 2025
CIVA presents an exhibition examining Belgian artist Marcel Broodthaers's complex relationship with architecture and urban space during a pivotal decade from 1957 to '67. Centered on his first exhibited artwork, *Monument Public nº4* (1963), the show reveals how postwar Brussels's built environment shaped the architect's artistic practice. On display are archival materials—including newspapers, photographs, and publications—that document his work, life, and collaborations with prominent figures of Modernism like architect Constantin Brodzki, artist-designer Corneille Hannoset, and poet-architect Pierre Puttemans. See civa.brussels.

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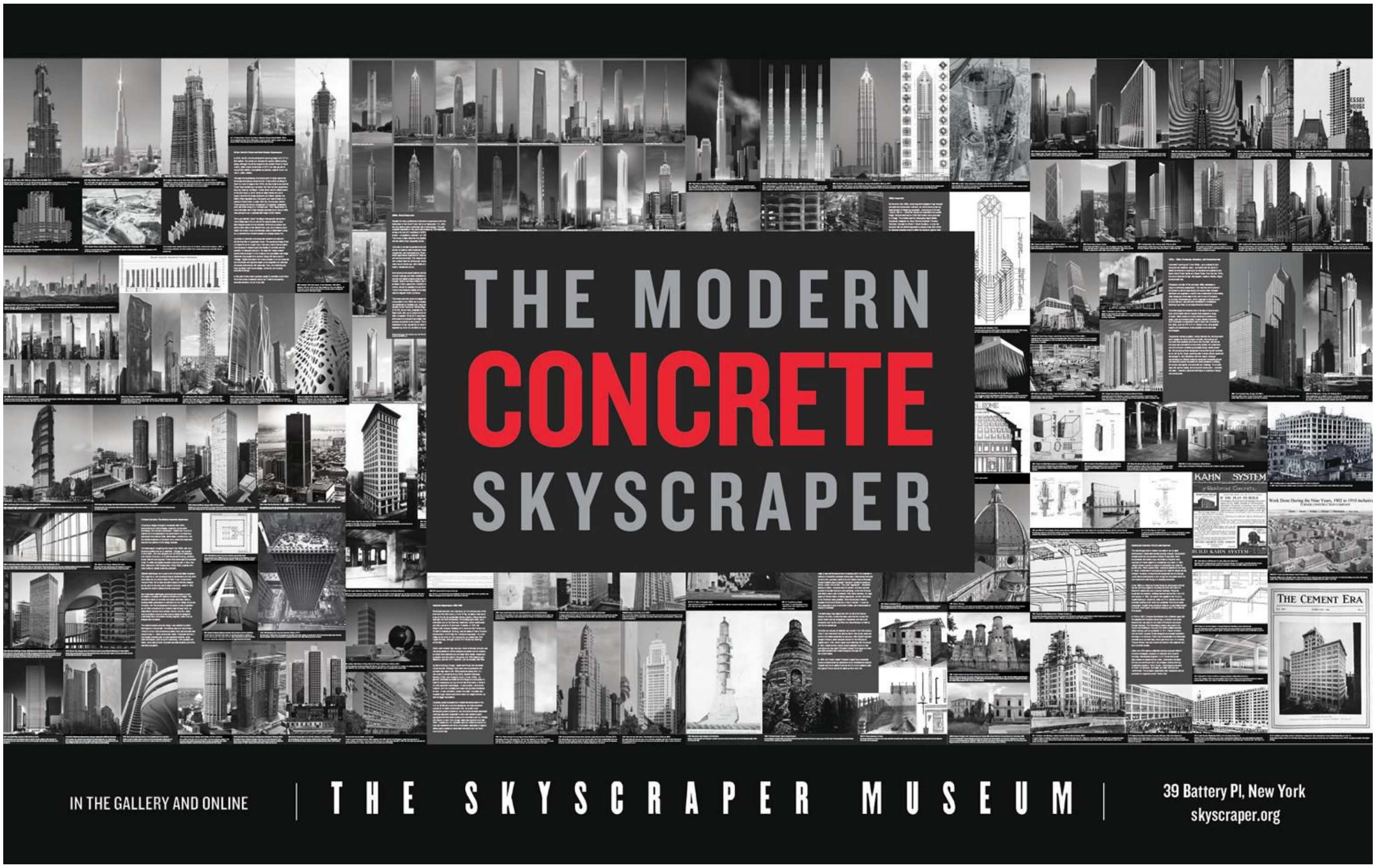

Capital Brutalism
Washington, D.C.
Through June 30, 2025
In the mid-20th century, urban-renewal efforts ushered in a Brutalist phenomenon that transformed the nation's capital. The National Building Museum explores the history, current state, and future of seven polarizing buildings from this era. The exhibition includes archival material as well as reimaginings of selected buildings by firms including Studio Gang, Brooks + Scarpa, Diller Scofidio + Renfro, Gensler, and 2023 Design Vanguard BLDUS. See nbm.org

Do Not Try to Remember
San Francisco
Through August 8, 2025
The Center for Architecture + Design presents an exhibition exploring the radical legacy of architects trained at the University of Oklahoma's American School. Rejecting European, Modernist conventions, practitioners like Violeta Autumn, Mickey Muennig, and Donald MacDonald established practices in the Bay Area, which made an ideal laboratory for their organic, individualistic approach to design. Through archival materials and documentation, the exhibition traces how these architects translated Bruce Goff's revolutionary pedagogy into built works that continue to inform contemporary architectural discourse. See cadsf.org.

The Craft of Carpentry: Drawing Life from Japan's Forests
London
Through July 6, 2025
Japan House London presents an immersive exhibition celebrating the traditions of Japanese carpentry, from ancient temple construction to contemporary practice. Centered around a full-scale reconstruction of Kyoto's historic Sa-an teahouse, the exhibition illuminates the sophisticated tools, techniques, and materials that define the architectural craft. Interactive displays allow visitors to explore traditional joinery methods and experience native wood varieties, revealing how master carpenters create structures that are both beautiful and resilient. For more information, see japanhouselondon.uk.

Events

Coverings
Orlando
April 29–May 2, 2025
The Orange County Convention Center hosts North America's premier exhibition of ceramic tile and natural stone, gathering 1,100 exhibitors from 40 countries. The annual trade show brings together industry professionals—from distributors and fabricators to architects and designers—to explore emerging trends and technologies in the sector. See coverings.com.

The Kenneth Frampton Endowed Symposium: Housing and Domesticity
New York
April 21, 2025
Columbia University's Graduate School of Architecture, Planning and Preservation inaugurates an annual symposium dedicated to architectural historian Kenneth Frampton. The daylong event will examining contemporary housing through the built works of its distinguished faculty, with practitioners including Steven Holl, Bernard Tschumi, and Amale Andraos presenting their approaches to domestic architecture and exploring themes of contemporary living across diverse scales and contexts. See arch.columbia.edu.

Competitions

2025 RAMSA Fellowship
Deadline: March 26, 2025
The RAMSA Fellowship is a $15,000 prize awarded annually to graduate students for travel and research. Robert A.M. Stern Architects (RAMSA) announces its 13th annual fellowship supporting architectural research through travel. The award, open to penultimate-year graduate students at NAAB-accredited programs, enables deep exploration of how tradition informs architectural innovation. Past fellows have investigated diverse topics from Egyptian mud-brick construction to Sicilian industrial heritage, with the option of a funded two-week residency at RAMSA's New York office to develop their research. Selected fellows present their findings to the firm the following spring. For more information, see ramsa.com/fellowship.

Email information two months in advance to schulmanp@bnpmedia.com.

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Check Out Our March Webinars

Fire-rated Expansion Joints: Employing Best Practices and Avoiding Field Problems

MARCH 12, 2025 AT 02:00 PM EDT

CREDITS: 1 AIA LU/HSW; 0.1 ICC CEU

There is more to an expansion joint system than just the frame and covers.

This AIA CES program deals with the life safety specifics of fire barriers, industry standards, and testing. In addition, it covers installation concerns, proper detailing of fire barriers, and the current state of joint system verification.

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A whopping 90% of construction litigation is driven by moisture intrusion. That intrusion occurs within just 5% of the total surface area of the envelope. The culprit is always the same: transitions and penetrations. What's the challenge? We need the envelope to perform as a unified whole. The industry is clearly consolidating around "total envelope solutions" provided by three to five horizontally integrated conglomerates, but we have not yet reached the inflection point: integrated envelope specifications/warranties. What's it going to take to do things better?

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Adaptive Reuse Transformations: Train Stations, Towers, and Hockey Arenas

MARCH 26, 2025 AT 02:00 PM EDT

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Join RECORD and three practicing architects—from Kohn Pedersen Fox, Kennedy & Violich Architecture, and Quinn Evans—who have recently completed transformative renovations. Speakers will discuss their respective methodologies and highlight specific case studies, including Michigan Central Station in Detroit, One Madison Avenue in New York City, and the Honnen Arts Club in Colorado Springs, and the economic decisions that shaped them along the way.

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Building Envelope Systems: Tie-ins, Transitions, and Continuity

MARCH 27, 2025 AT 02:00 PM EDT

CREDITS: 1 AIA LU/HSW; 0.1 ICC CEU

This presentation examines the critical nature of tie-ins, transitions, and continuity throughout the building envelope. These critical areas may only represent 1% of the building envelope, but it is said that 99% of building leaks occur as a result of incompatibility, adhesion loss, or lack of awareness when transitioning from one building envelope system to another. This in-depth review will describe common types of compatibility, best practice installations, and how to avoid costly building design and construction oversights.

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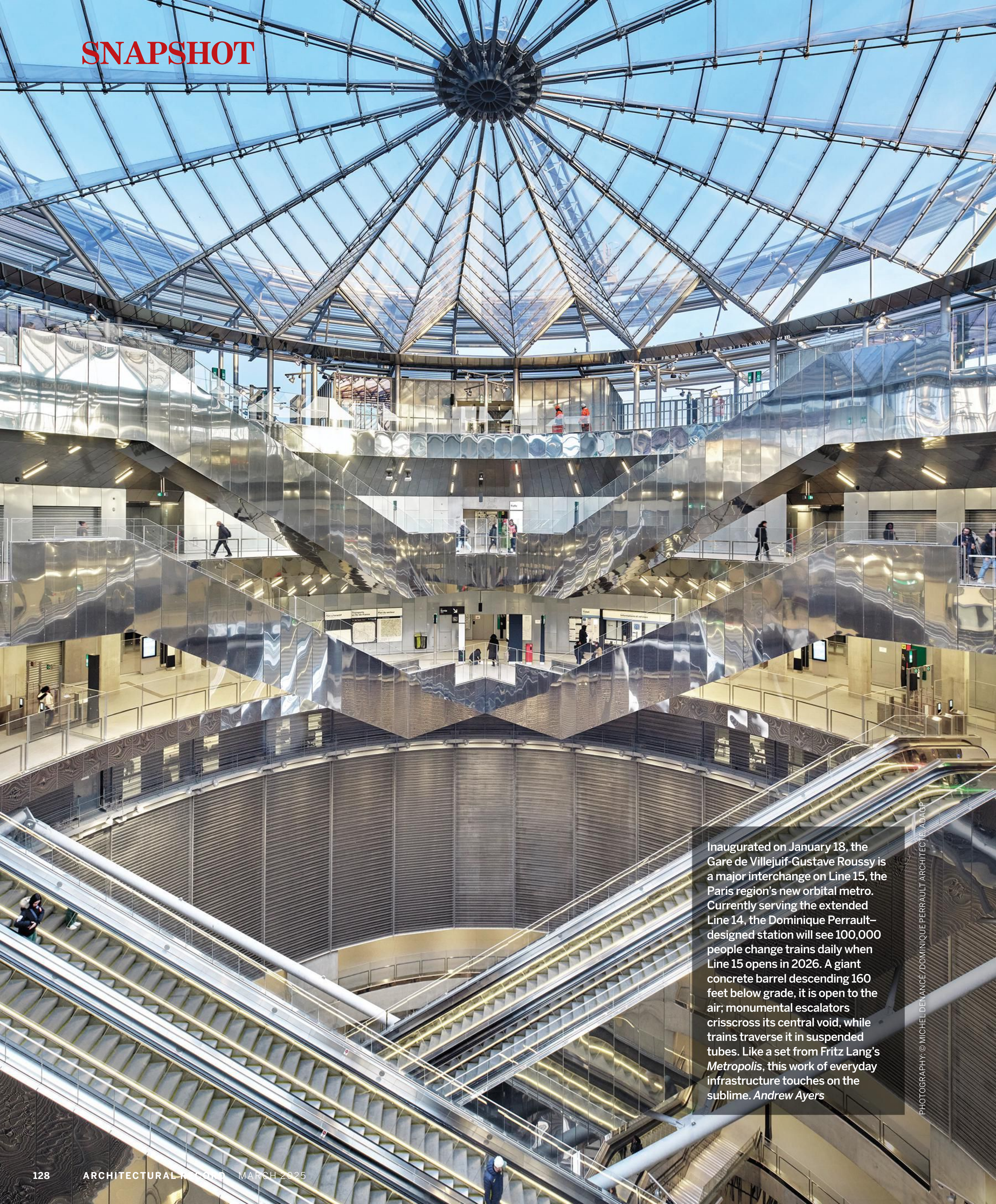

Inaugurated on January 18, the Gare de Villejuif-Gustave Roussy is a major interchange on Line 15, the Paris region's new orbital metro. Currently serving the extended Line 14, the Dominique Perrault–designed station will see 100,000 people change trains daily when Line 15 opens in 2026. A giant concrete barrel descending 160 feet below grade, it is open to the air; monumental escalators crisscross its central void, while trains traverse it in suspended tubes. Like a set from Fritz Lang's *Metropolis*, this work of everyday infrastructure touches on the sublime. *Andrew Ayers*

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